

COMPUTERWORLD

THE NEWSPAPER FOR IT LEADERS ■ WWW.COMPUTERWORLD.COM

FEBRUARY 15, 1999 ■ VOL. 33 ■ NO. 7 ■ \$4 COPY

USERS BUY IN TO SOFTWARE RENTALS

IT labor shortage, cost savings drive interest

BY JULIA KING

Judging from the way both big-gun and small-fry vendors are hurling their hats into the ring, the market for software rentals is about to explode.

For users, that could mean dramatically lower and more predictable costs, much faster access to new applications and far fewer administrative headaches. It also could help ease the impact of both the labor crunch and IT's preoccupation with the year 2000 problem — sometimes to the exclusion of other

technology needs.

"I think departmental and individual managers who are lining up for resources from IT and are being forced to wait are going to start turning to applications services providers and just renting what they want. This is already happening with hosted Web sites," said Phil Wainewright, editor of "ASP News Review," a newsletter based in London that has tracked the software rental market since last fall.

Last week, Microsoft Corp. confirmed that it will begin test rentals of its server-based products within the next six to 12 months. "It's Software Rentals, page 16

AT A GLANCE

■ What do ASPs do?

Applications services providers, or software rental services, buy the license

■ What do users do?

Users rent software via the Internet or a private network and pay a monthly per-user or by-transaction fee

Microsoft Corp. confirmed that it will begin test rentals of its server-based products within the next six to 12 months. "It's Software Rentals, page 16

Software Rentals, page 16

RETAILER COMMITS TO LINUX IN 250 STORES

Burlington Coat a big win for shareware OS; user sees better price, performance than NT

BY DAVID ORENSTEIN

Burlington Coat Factory Warehouse Corp.'s plan to run its stores on Linux may make users give real consideration to the shareware Unix operating system.

But then again, maybe not. After all, the retailer's infrastructure and culture are particularly well-suited to take it where many other companies fear to tread (see story, page 97).

The \$1 million-plus deployment at the \$1.8 billion

Burlington, N.J., discounter is the largest Linux retail installation announced by a U.S. company. "We're pumped,"

said CIO Mike Prince. "We finally made the business decision, and all the developers cheered."

Over the next 12 to 18 months, Burlington will install Linux on 1,150 computers in its 250 stores, Prince said. "Linux has come along so strongly, and the price of Intel PCs has dropped so much... [that it] is attractive from both



CIO Mike Prince:
"The developers
cheered"

a price and performance standpoint. It's free, and it runs like the wind."

Prince said he also expects Linux to be less costly to support and maintain than NT, which he said is less stable.

Retailer, page 97

HITACHI SKYLINE COULD DOUBLE RIVALS' SPEEDS

BY JAIKUMAR VIJAYAN

Big iron is getting a lot bigger.

Pumping it up is mainframe maker Hitachi Data Systems Inc., which later this month will unveil a next-generation Skyline system that should offer roughly double the performance of its rivals' current top-of-the-line systems. Hitachi officials declined to comment.

The new Hitachi mainframe, called Trinium, will offer

Hitachi, page 97

ANTITRUST AFTERMATH

YES, 18 WEEKS AFTER it began, the Microsoft antitrust trial is dragging on. But pay attention. If the government proves its case, the results could reshape the software industry

and change the way IT managers buy PC software. CIOs say they're leery of government regulation of the industry, but many would like to see pro-competitive contract changes and an official ruling that Microsoft is indeed a monopolist that must play by different rules. This week Computerworld senior editor Kim S. Nash looks ahead at how the historic trial could change the lives of IT buyers.

MICROSOFT TRIAL

Pact boosts E-commerce and expands services

BY STACY COLLETT

Customers of Electronic Data Systems Corp. will see expanded electronic business offerings as a result of its \$17 billion outsourcing swap last week with telecommunications giant MCI WorldCom Inc.

"We haven't grabbed a lot of space in the area of E-business, but we're working on it" through this deal, said Dick

EDS and MCI, page 16



OWENS CORNING CIO David Johns wants reason to win out in the Microsoft case. The government should prohibit exclusionary licenses, he says

We're Up to the Future.

Platinum Software + DataWorks

=the new force in enterprise resource solutions.

We've linked our award-winning resources to put even more powerful, customer-centric solutions to work for your business.

Have you heard? Platinum Software and DataWorks, two leading providers of enterprise resource planning solutions, have combined to create the new powerhouse in ERP applications. Our Platinum ERA (Enterprise Ready Applications) suite of products just got stronger, with ironclad robustness for linking sales and marketing, customer care, manufacturing, distribution, financials and budgeting. Its award-winning technology is based on Microsoft® Windows NT® and SQL Server™ 7.0. To learn how our winning combination can help you better serve your customers, call (800) 997-7528, or visit us at www.platsoft.com.

PLATINUM
SOFTWARE CORPORATION

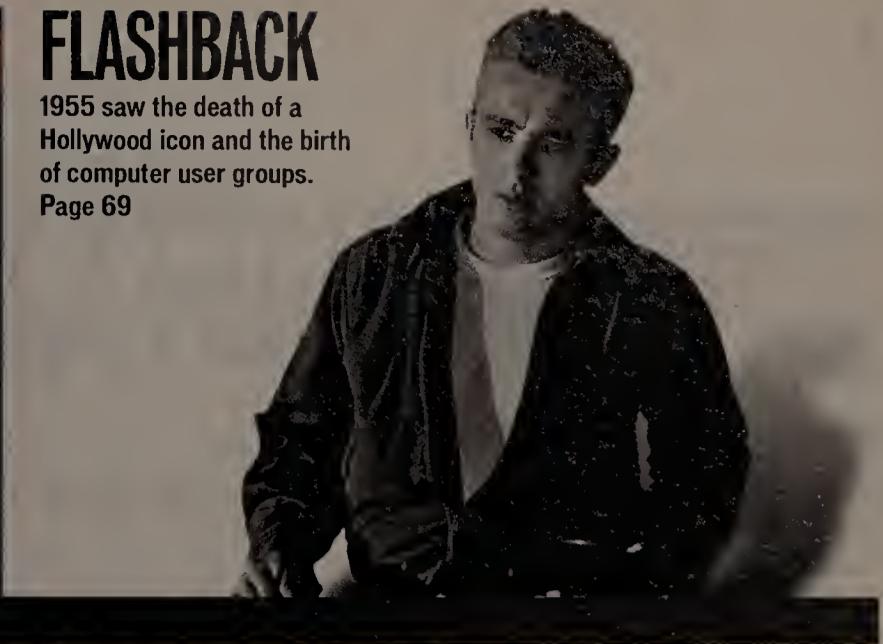
Platinum is a registered trademark and Platinum ERA is a trademark of Platinum Software Corporation. Microsoft, Windows NT, BackOffice and SQL Server are trademarks or registered trademarks of Microsoft Corporation.
© Platinum Software Corporation 1999. All rights reserved.

FLASHBACK

1955 saw the death of a Hollywood icon and the birth of computer user groups. Page 69

CLIPPING TO SUCCESS

Coolsavings.com CEO Steven Golden's customers say online coupons are a good way to get them in the store. Page 44



COMPUTERWORLD THIS WEEK

FEBRUARY 15-21, 1999

NEWS

4

4 SERVICE MERCHANDISE plans IT layoffs but continues with automation projects.

6 SEC THREATENS to crack down on skimpy Y2K reports.

8 EMERY OVERHAULS IT to streamline its business with new CIO at the wheel.

10 MICROSOFT READIES distributed computing plan to tie manufacturing systems to ERP.

12 MICROSOFT CONSIDERS customer-focused reorg; continues to slip up in court.

12 INTEL PROTESTS widening of antitrust investigation, but judge allows it.

14 CARMAKERS REV sales information packages to make dealers more effective.

16 FREE E-MAIL POSES security risk, lacking safeguards of most mail systems.

20 ELEVEN NATIONS unite to promote year 2000 readiness.

OPINION

33 IT PLAYS a central role in global economic development, David Moschella writes.

34 TECHIES SHINE in business roles, so stop whining and enjoy it, John Gantz advises.

MORE

Company Index 96
Editorial/Letters 32
How to Contact CW 96
Inside Lines 98
Stock Ticker 95

BUSINESS

39

40 MEMBERS FLEE from Help Desk Institute, seeking groups with better service.

41 ANALYSTS OFFER strategies to keep a handle on proliferating handhelds.

42 JAIL BUILDS prisoner database to keep a lid on trouble.

E-COMMERCE

44 WEB COUPONS PROVE an efficient way for some retailers to reach customers.

YEAR 2000

45 FOOD MAKERS FEEL confident in their preparedness; now they're checking suppliers.

45 U.S. Y2K CZAR TALKS about helping Russia and shippers prepare for Jan. 1, 2000.

46 HATE YOUR JOB? Career counselor offers tips for jumping ship.

48 MANAGERS GET MORE than just good work out of new IT people who are brought up to speed fast.

OPINION

49 Y2K THREATENS to end tons of business relationships this year, Ed Yourdon warns.

54 WORKERS SAY time off is the best perk, but employers keep asking for overtime.

56 TEN TIPS on how to get your boss to give you a raise now.

58 NICHE PLAYERS provide special benefits over larger players, Joe Auer writes.

TECHNOLOGY

61

SOFTWARE

62 ANALYSTS WARN that NT limitations may hobble ERP apps on SQL Server 7.0.

62 REVAMP OF MICROSOFT SMS aimed at boosting distribution, inventory capabilities.

63 EMERGING XML servers could improve data exchange for IT.

HARDWARE

64 CAPACITY PLANNING wins converts seeking to break free of endless server upgrades.

NETWORKS

65 STRONGER STANDARDS, low price may jump-start demand for Internet VPNs.

65 NORTEL TOOLS help IT manage WAN and LAN devices from one desktop.

66 KELLY SERVICES selects server-based antivirus technology, finds early success.

68 WE LOOK AT wireless E-mail options (and drawbacks) for the exec on the go.

OPINION

74 OUR FANCY METRICS aren't working, Frank Hayes writes. To find out how your projects are doing, apply Alan Turing's simple rule.

76 DESPERATE Y2K times call for desperate measures: a triage guide.

82 NOTHING COULD be "final" than to be seeking an IT job in North Carolina.

GIVEN A CHOICE, I WOULD RATHER CHOOSE TO HAVE MY LEG BITTEN OFF THAN TO BUY NT.

ROB NARBERES, IS MANAGER,
DNA PLANT TECHNOLOGIES CORP.,
WHO IS USING LINUX
TO IMPLEMENT A FIREWALL.
SEE PAGE 97.

BRIEFS**AOL Filing Reveals \$8M Year 2000 Bill**

In a year 2000 disclosure to the Securities and Exchange Commission, America Online Inc. revealed that it expects to spend about \$8 million to get itself ready for the date change. Though Dulles, Va.-based AOL said it expects its proprietary software to be clean, it added that it has received few responses from business partners and can't guarantee full year 2000 readiness.

Dell, Insurer Ink \$7M Deal for Laptops

Dell Computer Corp. in Round Rock, Texas, sold \$7 million in Latitude laptops online to Norwest Mortgage Inc. in Des Moines, Iowa, a mortgage and financial services company. Norwest will issue the 4,500 laptops to salespeople at 50 locations nationwide.

Survey Respondents Get Office 2000

Microsoft Corp. is rewarding customers who take an extensive survey on Office 2000 with a choice of a free copy of Office 2000 Premium or other products.

J. D. Edwards Issues Warning

J. D. Edwards & Co. is the latest enterprise resource planning vendor to feel the squeeze of lower-than-expected revenues. The Denver-based company said it expects revenue for its quarter ended Jan. 31 to be below estimates in part because users were focused on year 2000 fixes.

Short Takes

PLATINUM SOFTWARE CORP., an application vendor in Irvine, Calif., has agreed to change its name this year to settle a suit filed by Platinum Technology Inc. in Oakbrook Terrace, Ill. . . . Hewlett-Packard Co. and IBM plan to upgrade most of their corporate desktop PCs with Pentium III processors when the Intel Corp. chip is available Feb. 26.

UTILITY PLUGS IN CUSTOMER SYSTEM

Pacific Gas responds to deregulation

BY JULIA KING

IF THE THIRD TIME around is truly a charm, Pacific Gas & Electric Co. (PG&E) will have a new customer information system serving all of its 13 million customers by early 2002.

After starting and scrapping two different projects to build a proprietary customer information system (CIS), the San Francisco-based utility now is implementing SPL Worldgroup Inc.'s CIS Plus software. The 300-person project, valued at more than \$20 million, will be executed in several phases, the first of which carries a July deadline.

Under California's deregulation rules, that's the date by which PG&E must begin to calculate new rates for electricity that may be generated

by competitors but is still transmitted and billed to customers by PG&E.

PG&E's plan is to convert customers to the new system in chunks, beginning with large industrial and commercial customers and ending with residential consumers.

"This will give us time to work without taking on huge numbers all at once. Eventually, we'll use the new CIS software for all customers but work out any bugs before reaching the residential market," said Damien Brooks, the utility's CIS manager.

UtiliCorp United Inc. in Kansas City, Mo., another SPL Worldgroup user, whose proj-

ect began 18 months ago, also has used a phased approach. So far, it has migrated about 800,000 of its more than 1 million customers to the new system, according to Julian Brandes, executive vice president of San Francisco-based SPL's global consulting practice.

PG&E's CIS project follows two abandoned efforts to build its own in-house system, first in conjunction with Andersen Consulting and later with IBM. In both cases, the technology under consideration wouldn't have sup-

ported the billing capabilities PG&E must have to operate in a deregulated environment, Brooks said.

"This is hopefully the final evolution of that story," he said.



DAMIEN BROOKS:
We'll use the new
CIS software for all
customers

Service Merchandise to Shut 134 Stores, Lay Off IT Staffers

May business plan outlines cost savings

BY STACY COLLETT

Information technology staff layoffs are inevitable at Service Merchandise Co., a catalog showroom chain that plans to close 134 stores during the next three to four months.

"I expect we'll be downsizing after stores close, but I don't know by how much at this stage," said Ken Brame, senior vice president and CIO. Service Merchandise's IT department employs 272 full-time workers.

The job cuts couldn't come at a worse time. Industry watchers said major IT projects are critical to Service Merchandise's metamorphosis from a catalog showroom to a more conventional retail store.

"Those systems have to be

re-engineered, or there is no business. The trick now is money is limited. Also, this is the time when you really can't afford to lose your best people. You need top-flight business analysts and project leaders," said Brian Hume, president of retail consulting firm Martec International Inc. in Atlanta.

Service Merchandise is scheduled to release a business plan in mid-May that will outline staff cuts and other cost-saving measures.

Service Merchandise sales have been on a downward slide for more than a year. The company closed 60 stores and shut down its catalog showroom business in 1997. It reported a \$38 million net loss for its third quarter last year, compared with a \$25 million loss for the same period in 1997.

Brame insists the company's four main IT projects, many of which promise one-year re-

turns on investment, will continue, but a few smaller projects likely will be killed.

Service Merchandise, based in Brentwood, Tenn., is rolling out an in-house system that handles register-related functions and handheld technology for taking inventory.

Ongoing Projects

The rollout should be completed at the 213 remaining stores by May. The company also is implementing an "assortment planning" system from MarketMax Inc. in Danvers, Mass., that determines what products will be sold in each store.

Service Merchandise is reviewing vendors for a new warehouse management system, which is scheduled to be implemented in April 2000. The company also will continue to enhance its Web site (www.servicemerchandise.com), which offers direct sales.

One project likely to be canned is a gift-certificate payment system for mail-order transactions. Other projects with low return on investment will follow. ▀

Yet David Cain, manager of customer care and billing at the Electric Power Research Institute's Customer Systems Group, a consultancy in Palo Alto, Calif., said he isn't so sure.

"The interesting thing about deregulation and competition is that you can focus on one and forget about the other. The near-term objective of many utilities is to meet a date to get into compliance with regulatory rules, but the potential hazard is forgetting about the competition," Cain said.

Cain said he believes that SPL's software will indeed enable PG&E to meet its regulatory requirements. But ultimately, all utilities will need customer systems that are even more flexible so they can easily be integrated with sales, marketing and other business systems, as well as the Internet. ▀

IBM Readies Selective Outsourcing

BY BOB WALLACE

Outsourcing powerhouse IBM Global Services next week will announce a program through which it will team with users' information technology departments to tackle and solve network and systems management problems.

Although the vendor already provides outsourcing to users where it handles everything, its new "selective outsourcing" combines the power of user IT staffs with IBM Global Services experts.

The program is expected to cover IBM and other vendors' products managed by IBM systems. But IBM's Tivoli Systems Inc. network management unit will not initially be covered under the program, an IBM spokeswoman said.

The U.S. market for discrete network management and monitoring the service market is projected to grow from \$2.43 billion last year to \$4.69 billion in 2002, according to International Data Corp. in Framingham, Mass. That represents about an 18% average annual growth rate. ▀

Need to Back Up *UNIX* *and* *Windows NT*? **Backup Express: One Solution Across Platforms**

*Flexible, Distributed Backup/Restore with Intuitive,
Easy-to-Use Graphical Interface*



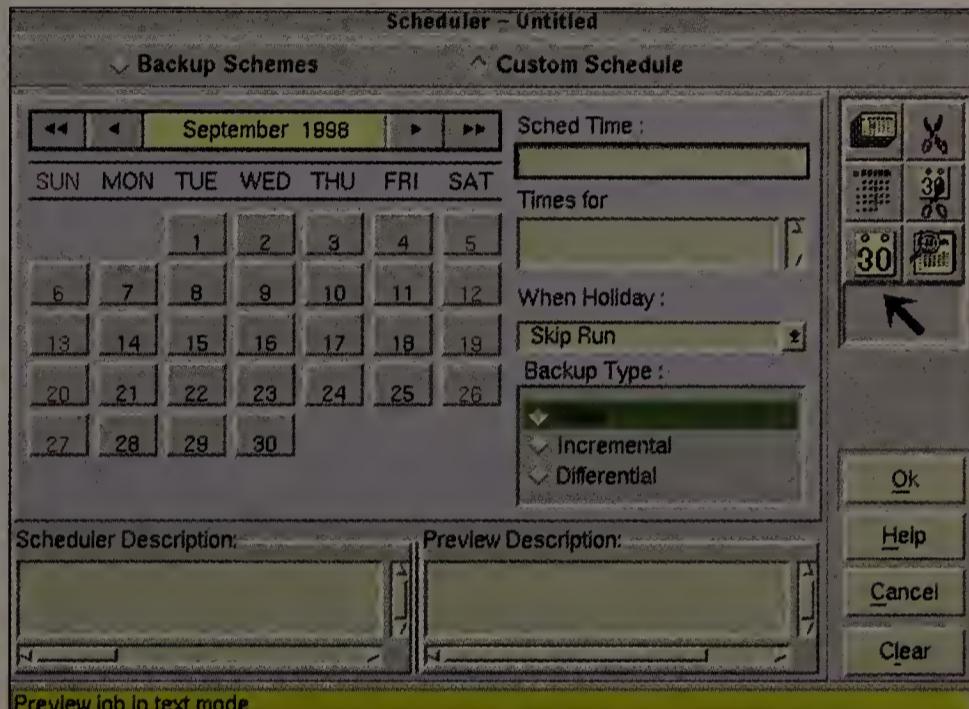
Many sites are faced with the dilemma of backing up lots of data on both of today's most popular network platforms, UNIX and Windows NT®. And that data is likely to be growing at the astonishing rate of 40% a year! How can you back up and restore all your UNIX and NT data fast with one easy-to-use graphical user interface?

Backup servers on UNIX or Windows NT

Built especially for today's multi-platform network environments, Backup Express lets you choose your strategy. You can concentrate your backup tape devices at one server, or you can distribute them throughout your network, connecting them to any UNIX, NT, or NetWare machine you choose. Yet administration is always centralized, and you can control all your backup and restore processing from any machine on your network with TCP/IP.

Distributing devices provides speed and flexibility

Because Backup Express allows you to connect storage devices to any machine on your network, you can minimize network traffic and break I/O bottlenecks. A distributed strategy also lets you increase concurrency and multi-tasking, so that overall processing time is



With the simple, intuitive Backup Express graphical user interface, you just drag-and-drop and point-and-click to schedule backups, run restores, add devices, or check job status.

reduced dramatically. In addition, distributing devices allows you to schedule backups with great flexibility. You can set up "lights out" backup easily, and restore data during the business day without fear of degrading network performance.

Need database backup?

For online backup, Backup Express provides native interfaces to SAP, Oracle's EBU and RMAN, M/S Exchange, and SQL BackTrack. Fast offline database backup is also available.

Backup Express is a single solution across platforms — fast, flexible, easy-to-use. You can arrange for a FREE trial of a full-production version of Backup Express. Just visit our web site at

www.syncsort.com/29cwb

or call us at

(201) 930-8200, Dept. 29CWB

You can also request a free reprint of the article "Optimizing Your Network Backup Performance."

syncsort

SEC THREATENS ACTION ON SKIMPY Y2K FILINGS

Is agency's bark worse than its bite?

BY THOMAS HOFFMAN
AND CRAIG STEDMAN

THE SECURITIES and Exchange Commission (SEC) last week said it's dissatisfied with the amount of information public companies are disclosing about their year 2000 costs and potential business liabilities. But the agency sent out mixed messages about whether it will take action against companies that aren't forthcoming.

On the one hand, Laura S. Unger, the commissioner in charge of the agency's year 2000 efforts, said the SEC is planning to start to take action against wayward companies. But she also said the agency hasn't yet identified any companies it plans to penalize.

For example, the SEC might step in if it discovered that a company's filings didn't include year 2000 information that was disclosed elsewhere, Unger said. "I can't speak for our enforcement division, but as a commissioner I would absolutely authorize [taking action on] something like that," she said.

The SEC is empowered to issue court injunctions or fine uncooperative companies \$5,000 to \$50,000, depending

upon the violations. Yet Unger said it's unlikely that the SEC would censure public companies or take direct actions against corporate officers.

That's despite an SEC review of year 2000 disclosures by 400 companies in last year's third quarter that revealed half had failed to outline how much they were spending on their projects. That maps with a recent *Computerworld* investigation that found most compa-

nies are continuing to file skimpy disclosure statements [CW, Feb. 1]. A separate SEC survey found that 1,200 companies failed to make any disclosures at all. Roughly half of the 400 10-Q and other third-quarter reports reviewed by the SEC contained no information about the backup plans demanded by the agency since tightening its disclosure requirements last July. But Unger and industry experts predict companies will be more forthcoming about disclosing their backup plans now that they're

beginning to address that part of the puzzle.

Lawyers who work with companies on year 2000 issues said the SEC's disclosure guidelines should be taken seriously. Even if the agency doesn't come down hard on companies that don't comply, those businesses could leave themselves open to lawsuits by disgruntled shareholders, the lawyers said.

"I don't think the SEC is going to go after companies in a formal sense," said Greg Cirillo, a partner in the Wash-

ington office of the law firm Williams, Mullen, Christian & Dobbins. "But [shareholder] suits are the bigger stick. And there's no way to read the SEC's guidelines and then not make a disclosure." ▀

GREG CIRILLO,
WILLIAMS, MULLEN,
CHRISTIAN & DOBBINS

Win 2000's Dirty Secret: Most Applications Must Be Rebuilt

Microsoft trying to ease migration

BY SHARON GAUDIN

The mostly new code in Windows 2000 makes it such a different beast than its NT 4.0 predecessor that corporate developers had better brace themselves: Most of their existing applications will have to be rebuilt, or at least revised, to make them compliant.

The issue isn't the stability of the current Windows 2000 beta. Even if the code in the final release of Windows 2000 is completely bug-free, many ap-

plications that run on NT 4.0 simply won't be able to use the new features, such as Active Directory or COM+, available in the upgraded operating system. "Eighty percent of the code in Windows 2000 is new," said Daniel Kusnetzky, an analyst at International Data Corp. in Framingham, Mass. "If that's not a new operating system, I'm not sure what is. With the Windows platform, each migration from one version to the next has been tough. This will be tougher."

Of course, there also are bugs in the early release of the Windows 2000 Beta 3 code that are causing some applica-

tion incompatibility problems.

"That doesn't surprise me, with 25 million lines of new code," said Jon Olsik, an analyst at Forrester Research Inc. in Cambridge. "That's what betas are for. Fixing them might further delay an already late piece of software.... The trade-off, though, is going to be if Windows 2000 is worth all the trouble of messing with all those applications."

New Features Are Problem

Karan Khanna, Microsoft's lead product manager for NT Server, explained that applications that run under NT 4.0 will run under Windows 2000 if they don't access the new features.

But if information technology managers want to take advantage of the reasons companies want to buy in to Windows 2000, such as public-key security and the new directory, then they will have to change those applications.

Khanna said Microsoft is trying to ease that workload by building some of the changes into the application programming interfaces (API) so developers can write to the APIs instead of building the coding into the applications.

But John Scannello, director of IT planning at Consolidated Edison of New York Inc., said he thinks his developers still

have a lot of work ahead of them. "That will be a big negative," Scannello said. "The thought of rewriting applications is not something a large company wants to deal with. If it's one or two applications, that would be one thing. I don't know how we'll deal with something bigger."

JUST THE FACTS

Code Monster

Windows 2000 has a burgeoning number of lines of code. Here's how it stacks up against other operating systems:

NetWare: 5M to 10M lines

Unix: 6M to 10M lines

MVS: 30M lines

Windows NT 4.0: 15M lines

Windows 2000: 35M to 40M lines

Microsoft Teases Knowledge Management

BY ROBERTA FUSARO

Some details of Microsoft Corp.'s knowledge management strategy are starting to seep out. The company floated knowledge management trial balloons last year at its Exchange conference and at a technical conference in Europe that introduced elements of its strategy: collaboration, publishing, search, tracking, workflow and data analysis.

Sources close to Microsoft said it's developing a knowledge management architecture under the code-name Tahoe.

Based on Microsoft's Site Server 3.0, Tahoe will include document management and workflow features such as search capabilities, Extensible Markup Language tagging and support, and document versioning.

The project also would include a "portal" component.

Analysts said Microsoft faces strong competitive pressure from IBM subsidiary Lotus Development Corp. to deliver on a knowledge management strategy. Rival Lotus has positioned its Lotus Notes and

Domino groupware as front-runners in this emerging market. Microsoft hasn't been able to deliver a strong knowledge management strategy, said Ovum Ltd. analyst Eric Woods, because it has been hamstrung by gaps among its disparate collaboration products such as Exchange Server, Site Server and Office 2000.

Gartner Group Inc. analyst Tom Austin predicts Microsoft's first knowledge management products won't ship until the end of 2001 or middle of 2002. ▀

Isaac Applbaum, senior vice president at Concord, Calif.-based Concorde Solutions, a subsidiary of Bank of America, said he will probably deal with it by devoting some developers to the task of bringing their custom applications into Windows 2000 compliance.

"It's going to be a bigger job than expected," he said. "I can tell you that we won't be an early adopter. When someone tells you there will be 80% new code, I can tell them we'll be on the careful side." ▀

Predict The Future, And You Can Change The World.

With NEUGENTS, You Can Do Both.

Introducing software that can emulate a human brain.

It's true. Neugents™ think like a human — only faster.

Neugents compute not in thousandths of a second, but millionths. Without emotion, subjectivity, or bias.

Neugents can analyze, make decisions, take action. They can process massive amounts of chaotic data and instantly identify complex patterns and relationships. Figuring out why things happen, and more importantly, predict what will happen next.

Neugents can learn. Using a unique self-learning algorithm, Neugents get smarter every second, every hour, every day.

The secret is Neural Network Technology. Computer Associates has taken this powerful technology and turned it into a patented application that goes far beyond traditional forecasting methods and rules-based applications.

Neugents can tell you what your sales are going to be next week, next month, or next year. They can tell you before your next product fails — and why. And for enterprise management, Neugents can do everything from warn you before a server goes down — or tell you when and where your next security breach will occur.

With virtually every aspect of your business, Neugents can accurately and consistently predict the future.

And when you can predict the future, you can not only change the future, you can change the world.

Call 1-877-Neugents for more information.

NEUGENTS. Software That Can Think.™

**COMPUTER
ASSOCIATES**
Software superior by design.

BRIEFS

Subaru in \$34M Outsourcing Pact

Subaru of America Inc. renewed its outsourcing contract with Unisys Corp. for five years in a deal worth \$34 million. Under the new contract, Subaru's data center, help desk and network operations centers will be moved from a Subaru facility in Pennsauken, N.J., to Unisys' facility in Eagan, Minn.

Free PCs, Net Access Offered - Ads Included

A California start-up is giving away 10,000 Compaq Computer Corp. Presario PCs packed with free Internet access, E-mail - and advertising based on respondents' answers to a survey. The ads are stored on hard drives and appear in a frame on the PC screen. Consumers last week jammed Free-PC Inc.'s Web site (www.freepc.com).

Surveys: Sales Staff Avoid, Ignore E-mail

In a survey of 300 auto dealerships, The Polk Co. in Detroit found that almost 75% of them haven't equipped their salespeople with E-mail - even though 90% said they could be connected to the Internet. And an informal poll of salespeople by New York-based sales training company D.E.I. Management Group indicated that 88% of 400 respondents have access to E-mail, but 64% don't use it for prospecting, and 76% don't read it immediately.

Short Takes

COMPUSA INC. is farming out application development, data center operations and implementation of a SAP AG R/3 system to IBM GLOBAL SERVICES under a seven-year, \$200 million contract.... **COREL CORP.** in Ottawa has adopted anti-takeover provisions. Rival graphics vendor ADOBE SYSTEMS INC. in San Jose, Calif., denied it plans to take over Corel.... A bill introduced in the U.S. HOUSE OF REPRESENTATIVES would double the CUSTOMS SERVICE's budget for combating Internet child pornography to \$5 million per year.

WIRELESS DATA STEPS CLOSER TO REALITY

But users wonder about costs, security

BY MATT HAMBLEN

LAST WEEK'S flurry of wireless data service announcements could mean more technical standards and wider competition that will bring costs down, corporate information technology managers said.

Four deals involving networking, telecommunications and software firms such as Cisco Systems Inc. and Microsoft Corp. reflect a move to wireless Internet access.

Still, users said companies will need thoughtful business cases for using wireless networks because service charges and synchronization software licenses will add up. "Costs could be prohibitive," said Tom Maurice, program manager at USG Corp., a Chicago maker of building products.

USG has deployed 500 Palm III handhelds from 3Com Corp.'s Palm Computing divi-

sion in the past year, with many executives using them to replace laptops on shorter trips for tracking personal information and simple E-mail. Maurice said USG is tracking

wireless synchronization software advances to give the Palm III greater functionality.

Maurice said he expects each handheld user to be charged a wireless synchronization software license of \$100 per year, atop a monthly secure network service charge

FAQ: Service Deals

What were last week's big announcements?

- Network equipment-maker **Cisco Systems Inc.** and phone maker **Motorola Inc.** said they will spend \$1B over four years to build an IP wireless platform for voice, video and data.
- **Microsoft Corp.** and **British Telecommunications** said they will develop wireless Internet and corporate data devices.
- **Nextel Communications Inc.**, a nationwide wireless operator, and **Netscape Communications Corp.** said Netscape will develop an Internet site that Nextel customers can access for stock quotes and more.
- **3Com Corp.**, parent of Palm Computing Inc., spent \$17.5M to buy France's **Smartcode Technologies**, a small developer of wireless data and Internet access software for cellular telecommunications companies.

Wasn't Microsoft already involved?

- Yes. In November, **Microsoft** and **Qualcomm Inc.** formed **Wireless Knowledge LLC** to create a secure wireless network. Analysts said it could compete with the Symbian alliance created earlier by cellular phone companies **PSion PLC**, **Motorola**, **Ericsson AB** and **Nokia**.

of \$50. "Handhelds have been great so far because of the low cost for limited needs, but wireless costs could add up," he said.

Alex Hu, senior technology officer at The Chase Manhattan Bank Corp. in New York, said that with 70,000 users, all types of remote access are under consideration, but wireless data has a low priority. "Honestly, for banks, wireless data doesn't provide a benefit for the security risk," he said.

Analyst Gerry Purdy at Mobile Insights Inc. in Mountain View, Calif., urged IT to follow the wireless developments full time. "Be aware that wireless data is a niche today but will be mainstream in the new millennium," he said.

Big industry players getting involved in wireless also could change some minds. Michael Fouts, senior network analyst at The CIT Group, a financial services company in Livingston, N.J., prefers frame-relay for carrying financial data. But, Fouts said, Cisco's working on an IP platform could mean eliminating staff and office space needed to run his frame-relay network — if it could securely be replaced by wireless communications. ▀

New Emery IT Czar Handed Keys to \$75M Overhaul

Goal: Y2K fixes, new IT foundation

BY STEWART DECK

When Ronald Berger took the wheel as director of information systems at package shipper Emery Worldwide two weeks ago, he found himself in the middle of a \$75 million technological refurbishing and makeover project.

So far, the five-year project is running fairly smoothly at the fifth-largest express carrier in the U.S., Berger said, with several new developments slated to come online during the next few months.

The 18-year Emery veteran was given the keys to the EMCON 2000 project at the \$2.2 billion company, a division of CNF Transportation Inc. in

Redwood City, Calif. EMCON 2000 has alternately slowed down and sped up during the past five years. Launched in 1994, the project was designed to upgrade Emery's mainframe-based systems, solve any year 2000 troubles and lay an information technology foundation in cargo operations, electronic commerce, data warehousing and sales and marketing.

The overhaul was slowed by a complete business re-engineering in 1996, Berger said. "EMCON's original concept was then changed to support some better internal processes, including making our data warehouse a centerpiece for our internal business needs," he said.

To do that, the warehouse has been redesigned to pull in more data from accounting

systems and to make financial analysis and business queries simpler. "We couldn't easily extract data from some of our legacy systems, even with a fairly new data warehouse," Berger said. "When this is completed in the next three to four months, it will be faster and more efficient and allow us to do better forecasting and strategic planning."

Those abilities are vital to shipping firms such as Emery, said Warren Powell, a professor of operations research at Princeton University. "Without a rock-solid costing system you can't see where the losses are because the business is so complex. Without the ability to see that data, carriers can't survive," Powell said.

Other pieces of the EMCON 2000 project are slated to go live in the next several months. Within the next 60 days, the

shipper will unveil a Web-based, package pick-up request application and by year's end will have technology in place to update package tracking as often as every 10 minutes.

One of the most complex pieces of the EMCON project — a pricing/rating application of complex business rules structures for each of Emery's customers — will be completed in April, tying all operational data to financial applications.

Powell said that Emery, like Federal Express Corp., has made a break from its trucking past. "Trucking and rail companies are traditionally conservative when it comes to trying new technology. But package delivery companies like FedEx and Emery have an airline mentality: They're willing to take some risks to try out new things," he said. ▀



RONALD BERGER landed in the middle of Emery's five-year IT overhaul



Why does the moon
stay in the sky?

What makes
the stars twinkle?

How does
the Internet work?

Actually, it works very well. Maybe because so much of it runs on Compaq. Four out of the five most popular Web sites are powered by Compaq. Hundreds of millions of hits are handled by Compaq platforms

every day. Three-quarters of the top ISPs have standardized on Compaq for their Windows NT® based Web hosting. And if you've ever received e-mail, chances are, we helped get it to you. To find out how the Internet can help grow your business, feel free to ask the source at 1-800-AT-COMPAQ. Or visit www.compaq.com/moon.

COMPAQ Better answers.™

©1992 Compaq Computer Corporation.
Windows NT is a trademark of Microsoft Corporation.

Microsoft Zeroes in on Manufacturers Moving Toward ERP

BY CRAIG STEDMAN

Microsoft Corp. next week plans to announce a version of its distributed computing tech-

nology tailored to manufacturers that face the daunting task of tying together applications ranging from shop-floor de-

vices to enterprise resource planning (ERP) systems.

The Windows DNA for Manufacturing bundle is sup-

posed to provide users with plug-and-play integration of diverse corporate and plant-level systems, although ana-

lists familiar with the Microsoft plans said the technology should work best in Windows-oriented settings.

Users such as Clorox Co. in Oakland, Calif.; Ocean Spray Cranberries Inc. in Lakeville, Mass.; and Nike Inc. in Beaverton, Ore., are expected to take part in the announcement, according to Microsoft.

A simplified way to tie together diverse applications "is kind of the Holy Grail" for manufacturers, said Jim Shepherd, an analyst at AMR Research Inc. in Boston.

JUST THE FACTS

Windows DNA

What is Windows DNA? Microsoft's technology for tying together different applications in a Windows-based network

What systems are supported? PC and Web browser clients; Windows NT application servers; NT and other back-end servers

What is the key technology in DNA? Microsoft's Component Object Model specification for distributed applications

What competes with Windows DNA? The multivendor Object Management Group's Common Object Request Broker Architecture

"You can nearly always find a way to move data back and forth, but it's a long and painful process to make them interoperate in a meaningful way," Shepherd said.

For example, users have to figure out how to filter all the data collected by shop-floor devices so the information doesn't choke their ERP systems.

Hoechst Marion Roussel Inc., a pharmaceuticals maker in Kansas City, Mo., tried to limit add-ons to its SAP R/3 system to third-party applications that came with a plug-in interface to the ERP software.

But the company still ended up developing about 160 interfaces on its own, said Gary Peteritas, SAP project manager.

For example, Hoechst Marion Roussel had to build three-way links among R/3 and the systems that manage its development laboratories and maintain the recipes used in production, Peteritas said.

Microsoft has quietly been infiltrating manufacturing plants in recent years, Shepherd said. Windows NT is now "the de facto standard" for shop-floor systems, he added, and it is becoming a credible ERP alternative to Unix. ▀

Y2K PROBLEMS ARE LIKE LIFE. WHAT DOESN'T KILL YOU CAN MAKE YOU STRONGER.

In the uphill battle to January 2000, the strong will survive. But the strongest won't stop there. They'll keep striving upwards to the next challenge, and the next. Because they know with each new problem – from compliance to contingency planning to change management – comes a tremendous opportunity to take their enterprises to a new level.

They also know where to turn for the source of strength. Millennia III.

Not just solutions for Y2K. Solutions with a future.

We're the premier provider of comprehensive, integrated solutions for Y2K and beyond. We don't just help you survive problems. We make sure you gain momentum with every step of your ascent.

What peaks can we help you conquer?

Y2K compliance? CONVERSION2000™, our industry-acclaimed, end-to-end process, is your proven path to surmounting any and all aspects of the Y2K challenge.

Distributed systems Y2K risks? Millennia III's LINK2000™ delivers Y2K compliance while laying the foundation for effective distributed systems management beyond 2000.



Contingency planning? Whether focused on IT, value chain or business infrastructure, our SOS2000™ service ensures you have the plans in place to deal with Y2K or any crisis your organization may face.

Proving your compliance? Our TEST2000™ service includes both end-to-end testing and Independent Validation & Verification (IV&V), designed to ensure that what you've changed works as expected.

Project or program reviews? To make sure your Y2K project is headed in the right direction, our AUDIT2000™ service identifies project risk areas and recommends how to mitigate those risks.

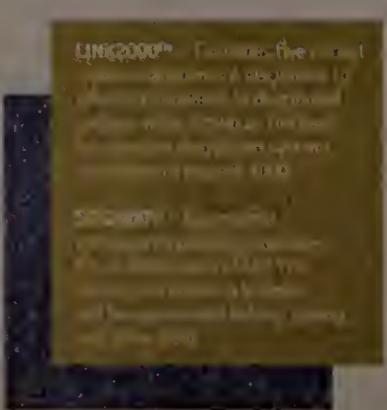
The Y2K challenge isn't about mountains of code. It's about securing your enterprise's future by constantly reaching higher. If you're ready to scale new heights, come climb with us. Because for the strongest, there's really only one way to go. Up.

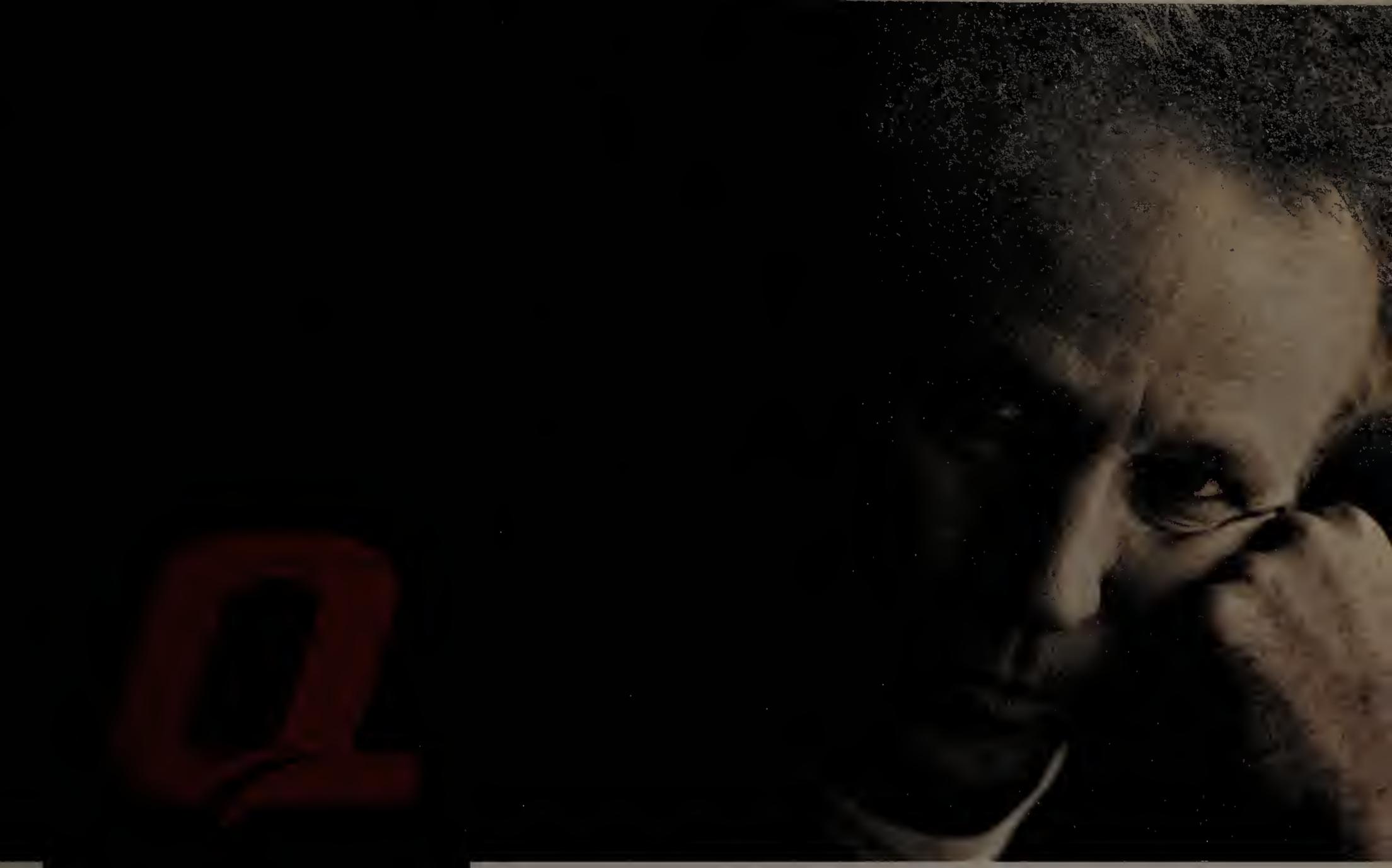
Call us today:
U.S. - 1-888-522-3908
U.K. - +44(0)1932 339 100
Or visit our website at:
www.millennia3.com

TEST2000™ – End-to-end testing process and/or IV&V services designed to ensure changes work as expected when 2000 hits, while improving your overall testing process.

AUDIT2000™ – Enterprise-level evaluation of an organization's existing Y2K status with an emphasis on IT risks but including supply chain, customer and business infrastructure assessments.

MILLENNIA III
THE FUTURE SECURED





Do computer
makers believe that
every time they
come out with
new product,
I get a new budget?

Reality check: If you've invested in technologies like OpenVMS® or NonStop Himalaya®, you count on them to run your business—and they do it well. But with IT rapidly evolving, there are opportunities you'd like to seize. So Compaq is extending these environments to incorporate elements like Web-enabled capabilities,

Windows NT® interoperability and 64-bit performance. Which means your IT infrastructure can remain firmly in place while new applications like e-commerce come on-line. We offer not just systems but software, services and solutions to make it all work together. So your past investments will continue reaping future returns.

To learn more, call 1-800-AT-COMPAQ. Or visit www.compaq.com/investment.

COMPAQ Better answers.™

Microsoft Considers Reorganization Plans

Possibilities include refocusing managers on customer segments

BY KIM S. NASH

As Microsoft Corp. continues to search for a leader for its Internet group, President Steve Ballmer also is considering whether — and how — to reorganize the software company as a whole.

A Microsoft spokeswoman downplayed rumors last week that the company is close to announcing a major reorganization, saying Microsoft usually reconfigures itself once every year or two.

Ballmer is "talking to Microsoft employees" to evaluate restructuring options, she said. "If you look at the segments, they are very important customer segments to Microsoft. But it's premature to say the company will reorganize," she said.

According to published reports, one idea said to be in the works is to refocus managers on customer segments rather than technology areas.

For example, instead of today's four product-focused units — personal and business software, tools, Internet and information appliances — Microsoft would be split into teams responsible for, say, cor-

porate customers, retail users and developers.

A sharp customer aim is in keeping with Ballmer's vow when he became president in July: to better understand what different types of buyers want [CW, July 27].

A revamp by customer segment could help stem the Microsoft "arrogance" that some

information technology users have complained about, said Rob Enderle, an analyst at Giga Information Group Inc. in Santa Clara, Calif.

Splitting Microsoft along user types would mean "you'll have a vendor much more interested in helping customers get where they want to go rather than telling them where

to go," Enderle said. "That has been a serious problem for Microsoft."

For example, some CIOs said they feel pressured by Microsoft to pay more for software they sometimes don't need [CW, Nov. 30]. Last summer, Microsoft merged its corporate customer and technical support groups in a bid to pay more attention

to IT user needs [CW, July 27]. Corporate users — which

Microsoft sees as its future bread and butter — have long criticized the vendor for spotty support. Microsoft's Internet group has lacked a full-time leader since Pete Higgins took an open-ended leave of absence in December; Ballmer has overseen the team in the interim. ▀



MICROSOFT'S
Steve Ballmer
wants to better
understand buyers'
needs

JUDGE WIDENS WITNESS LIST IN INTEL ANTITRUST CASE

Rulings allow Micron, Data General and Harvard economist to testify

BY STACY COLLETT

DESPITE PROTESTS from Intel Corp., the Federal Trade Commission is casting a wider net of possible witnesses in its antitrust case against Intel.

In rulings that were publicly released last week, an FTC administrative law judge said executives from Micron Elec-

tronics Inc. and Data General Corp. will be allowed to testify at the trial, which is scheduled to begin March 9. Intel had filed motions to exclude witnesses outside the microprocessor market.

Also, Judge James Timony will allow Harvard University economist Frederic Scherer to present a report about Intel's role in the market for "chips,

chip sets, motherboards and computers."

Intel had wanted to limit the testimony to the microprocessor market covered in the original lawsuit.

Timony also refused to remove FTC attorney Richard Parker from the case. Intel argued that Parker was biased because he had once represented Intel rival Advanced Micro Devices Inc. in litigation against Intel.

The FTC filed suit last June charging that Intel illegally used its power in the chip mar-

ket to coerce three companies — Intergraph Corp., Compaq Computer Corp. and Digital Equipment Corp. — to accept technology licensing deals on Intel's terms. Intel has denied illegal activity.

In another development, the FTC reported that it recently discovered a document that detailed an Intel threat against both Micron and Silicon Graphics Inc.

The nature of the threat wasn't disclosed. Intel wanted to quash the evidence, but the judge denied that motion. ▀

Microsoft Miscues: More Logs on the Fire

Second tape gaffe, inconsistent testimony may singe software company's defense

BY PATRICK THIBODEAU
WASHINGTON

Halfway through its witness list, Microsoft Corp.'s antitrust defense seems to be tripping on the big things.

The company last week endured yet another videotape gaffe and still another witness whose courtroom testimony didn't square with his own written record.

Whether those incidents will hurt Microsoft's case in the long run remains to be seen. But for now, they're taking a toll inside and outside the courtroom.

Mark D. Wilkins, CIO at Empire Fire & Marine Insurance

Co. in Omaha, said Microsoft's credibility has suffered as a result of its videotape problems.

"It made them look a little more guilty to people on the outside looking in," Wilkins said. "The impression hurts them — but it could have been an honest mistake."

Last week, Microsoft used a videotaped demonstration in a bid to show how easily and quickly a PC with Windows 98 can connect to the Internet. It compared that to a PC with Windows 3.1. Both machines were similar, Microsoft said.

However, David Boies, the lead government attorney, asked about the modems. Were

AT THE TRIAL
Brad Chase



Position: Microsoft vice president, Internet client and collaboration division

Testimony:
Believes America Online Inc. picked Internet Explorer as its browser because it had the best technology. David Colburn, an AOL vice president, testified earlier that it was a promised Windows desktop display that clinched the deal

they similar?

They weren't — the Windows 98 PC had a 33.6K bit/sec. modem, whereas the Windows 3.1 PC used a 28.8K bit/sec. modem.

The performance difference between the two modems was

almost inconsequential. But while Boies asked his questions, Judge Thomas Penfield Jackson had a razor-thin smile.

Two weeks ago, Jackson had cited Boies for "a very professional job" in discrediting a demonstration in which Microsoft implied that only one PC had been used. It turned out that several PCs were used in the filming.

Boies didn't dwell on the videotape with his witness, Cameron Myhrvold, vice president of Microsoft's Internet customer unit.

No-Nonsense Attorney

In court, Boies' wardrobe — a dark blue suit and knit tie — never varies. And neither does his approach to trapping a Microsoft witness: He probes for inconsistencies.

For example, Boies asked Myhrvold whether America Online Inc. and other Internet service providers that wanted

to be in the Windows desktop online services folder had "to commit that 85% of the browsers they ship to customers would be [Internet Explorer]."

"That's absolutely wrong," Myhrvold said firmly.

Boies quickly handed him an E-mail that Myhrvold wrote in May 1996 that said Internet providers "will have to commit that 85% of the browsers they ship to their customers will be [Internet Explorer]."

Myhrvold, flustered, acknowledged writing the memo. Later, he backed away from his answer and said he didn't know what was in the Internet provider contracts.

The government alleges that Microsoft's contracts with Internet providers — requiring them to ship a high percentage of Internet Explorer browsers in exchange for desktop space — were an abuse of monopoly power. ▀

Customer Relationship Management



Profile customers

Assess marketing ROI,
analyze churn, and more

Award-winning data
warehousing capabilities

Fully Web enabled

Year 2000 compliant

**Whether your customers are delighted,
or simply delighted to leave, revolves
around knowing your customer data.**

That's why you need the SAS® Solution

Who are your most profitable customers...and *why*? How many customers are you losing...and *why*? What value do your customers see in your products and services...or those of your *competitors*? Instead of just storing your customer data, explore all the possibilities with the SAS Solution for Customer Relationship Management.

It's the only software that integrates the full scope of managing customer relationships. Collect information at all customer contact points...then analyze data to better understand customer needs. Refine business strategies around your most profitable customers. Determine lifetime customer value. All by just pointing and clicking.

To find out more, and request a free *Guide to Customer Relationship Management with the SAS® Solution*, visit us at www.sas.com/crm

SAS SAS Institute Inc.
The Business of Better Decision Making

www.sas.com/crm E-mail: cw@sas.com Phone 919.677.8200

In Canada phone 1.800.363.8397 SAS is a registered trademark of SAS Institute Inc. Copyright © 1998 by SAS Institute Inc.

BRIEFS

E-Commerce Drives Fingerhut Buyout

Federated Department Stores Inc. in Cincinnati, parent company of Macy's and Bloomingdale's, hopes to leapfrog other retailers in electronic commerce with last week's proposed \$1.7 billion buyout of Fingerhut Cos. Originally a paper-only catalog company, Fingerhut, in Minnetonka, Minn., has aggressively delved into electronic commerce. A Federated spokesman said the company won't merge operations or information technology groups.

Electronic Billing Standards Proposed

Two industry groups have developed guidelines for electronic bill presentation and payment. Developed by the National Automated Clearing House Association in Herndon, Va., and Banking Industry Technology Secretariat in Washington, the guidelines are available on the Web at www.nacha.org/billpay/businesspractices.htm.

Computer Grad Pay Offers Jump 7%

The spring recruiting season for new college graduates is off to a healthy start, according to a salary report issued last week by the National Association of Colleges and Employers in Bethlehem, Pa. Computer science graduates saw their average offer jump 7% from last year to \$44,878, one of the highest average starting salaries reported in this survey.

Short Takes

German application vendor SAP AG last week said the General Services Administration has cleared its R/3 software for purchase by U.S. government agencies. . . . In what may be the first international year 2000 lawsuit, Brazil's Sao Paulo Football Club has filed a liability lawsuit in Sao Paulo State Court against a unit of SIEMENS AG. The soccer team alleges that a private branch exchange system it bought in 1997 needs to be fixed to handle the year 2000 date change.

HUMAN SIDE KEY TO DATA WAREHOUSING

At conference, end-user social science aspects will get their due

BY STEWART DECK

AT THE Data Warehousing Institute Implementation conference in Anaheim, Calif., this week, there will be plenty of technical talk about Web interfaces, repositories, pack-

aged analytical applications and architectures. But the human side of data warehousing will share the spotlight.

In warehousing projects, social science can be as important as computer science, said Wayne Eckerson, vice president of technology services at

the Data Warehousing Institute, a for-profit educational group in Gaithersburg, Md.

Unlike many information technology projects that run quietly once they're put in place, a data warehouse usually grows exponentially once it's implemented, Eckerson

DaimlerChrysler to Link Dealer PCs to Key Data

Electronic Sales System would centralize information, speed up sales process

BY BOB WALLACE

Many automakers are testing systems designed to help their dealers speed the vehicle sales process by providing them with all the data they need at their desktop PCs.

Among them are DaimlerChrysler AG and Ford Motor Co. The former's Electronic Sales System (ESS), which is being tested, provides online access to everything from vehicle availability to sales incentives in an effort to phase out the inexact process of checking physical manuals and querying management.

"This will reduce the process [that] has had errors and takes over an hour to one that takes 15 minutes and has zero errors," said Tom Peyton, senior manager of retail technology at DaimlerChrysler.

"Salesmen will be able to get all the information they need in one place," Peyton said.

Packages such as ESS are being deployed widely in the auto industry because product information, pricing and sales incentives change frequently, making it difficult for salespeople to keep up with this paper-based information and slowing the sales process, analysts said.

ESS is being piloted in six dealerships in the first half of this year, but the automaker hasn't set a national rollout

date for the package. ESS runs with other applications on dealers' current computers.

But one industry expert predicted that it will be quite a while before dealers widely use programs such as ESS.

"Although this type of system is of great benefit to dealers and consumers, adoption of most high-tech items takes years before gaining mainstream acceptance, much like

the Internet in general," said Chris Denove, an analyst in J. D. Power and Associates' Agoura Hills, Calif., office.

"I'm concerned that salespeople will be reluctant to take advantage of its capabilities," Denove said.

Nonetheless, ESS offers functions that aren't supported on DaimlerChrysler's consumer Web site, Peyton said. These include checking for current factory incentives, scanning the inventory of other dealers, handling trade-ins, ordering vehicles and discussing service contracts.

Consumers won't have access to ESS.

DaimlerChrysler developed ESS with Houston-based Dealer Solutions and PBS Financial Systems in Calgary, Alberta. ▀

Age-Bias Case Settlement Offers IT Layoff Guidelines

BY BARB COLE-GOMOLSKI

A recent settlement between a computer maker and an anti-discrimination agency could set a new standard for layoff procedures in the IT industry.

Bull HN Information Systems Inc. and the Massachusetts attorney general last month settled charges that the company discriminated against older workers during layoffs in the early 1990s.

Though the settlement includes no monetary payments or admission of wrongdoing, the Billerica, Mass.-based company agreed to do the following:

■ Notify former employees of

new job vacancies.

- Require senior management to review all layoffs of workers over the age of 40.
- Change its internal complaint procedure for age discrimination.

"These are fairly detailed conditions," said David Lofholm, a partner in the labor and employment group of Graham & Jones LLP, a law firm in San Francisco. Lofholm said a lot of companies fail to protect themselves

said. To make sure the projects have the ongoing support they need, IT managers have to make sure they keep in touch with their users and executives through team-building and quality assurance presentations, he said.

"Data warehouses are not simply IT projects because their ultimate success depends so much on the end users," said Jackie Sweeney, an analyst at International Data Corp. in Framingham, Mass.

"More data warehousing projects fail from organizational reasons than from technical reasons," said Herb Edelstein, an analyst at Two Crows Corp., a consultancy in Potomac, Md.

The conference will be far from a sociology seminar, however.

The event will also feature several sessions covering integration of data warehousing and enterprise resource planning (ERP) software. That topic garners so much interest because "ERP systems have become the big data-generators for many organizations, but they aren't particularly good at business intelligence and analysis," Edelstein said.

Eckerson said he expects sessions on data warehouse Web-connectivity to be well-attended. "Because it requires minimal training and reduces IT overhead, the Web is becoming the de facto warehouse access platform," he said. ▀

adequately from age discrimination complaints.

A company planning layoffs should compare the average age of its current workforce with the average age of the workforce after the layoffs, he advised. "It's also good to compare the average age of employees being laid off with the ones who are staying," Lofholm said.

JUST THE FACTS

Older IT Workers

Top three attributes of older IT workers:

- Overall experience
- Discipline
- Loyalty

Base: December survey of 203 IT managers

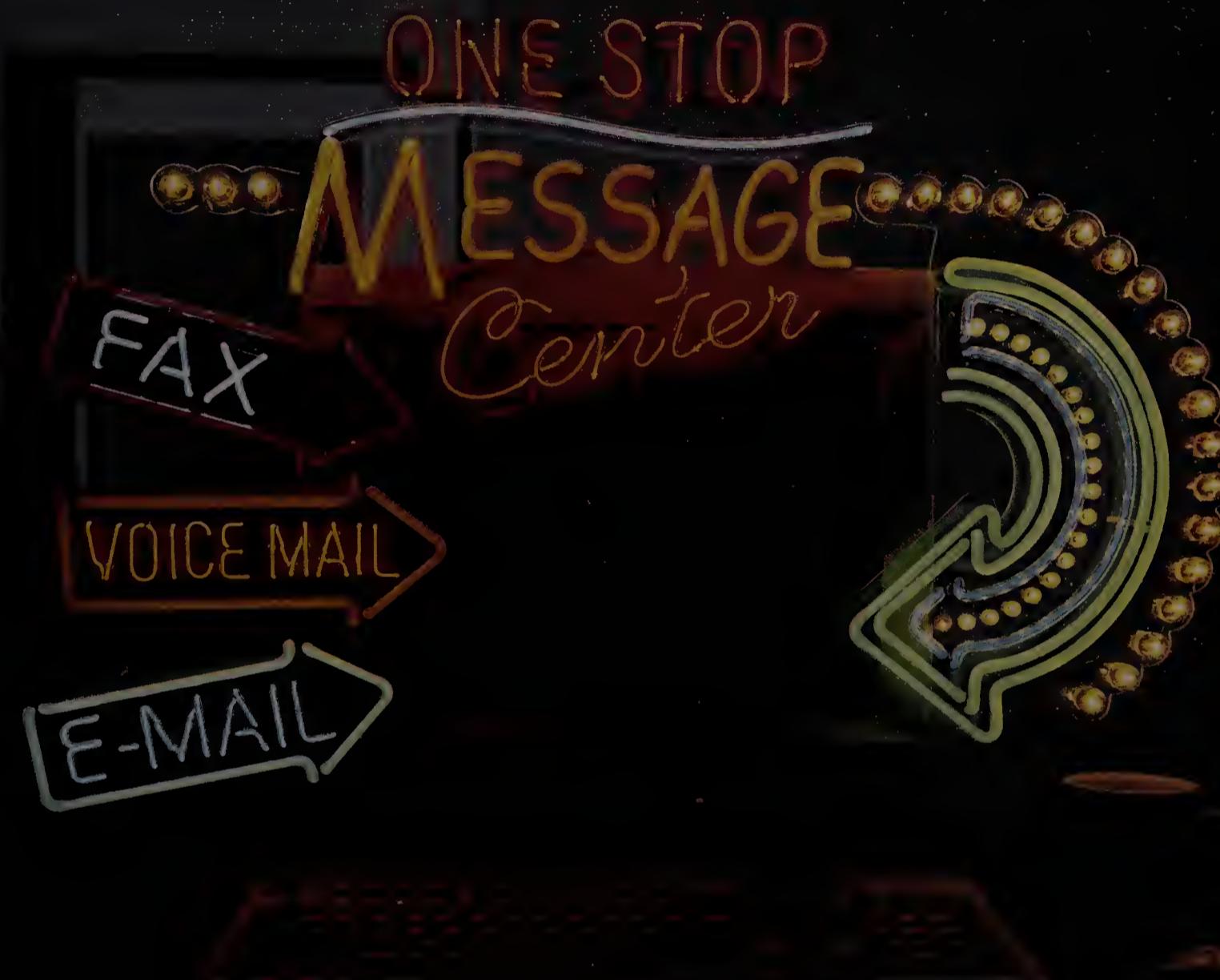
SOURCE: COMPUTERWORLD IT INTELLIGENCE UNIT FRAMINGHAM MASS.

If the comparison is disproportionate, make adjustments, he said.

Lofholm said companies should also have employees sign a release that says they won't sue the company for age discrimination, in exchange for a more attractive severance package. ▀

Now you can pick up
all your messages
at one convenient location.

www.nortelnetworks.com/3YDY



Introducing CallPilot - the latest in unified messaging technology from Nortel Networks*. CallPilot lets you manage e-mail, voice mail and fax messages with the mere click of your mouse, all from within your familiar e-mail interface.* You can even use our revolutionary speech recognition feature to manage your messages using simple voice commands. All this is made possible with a Unified Network from Nortel Networks, which enables you to integrate voice, video and data and create a communications solution that will serve your needs well into the future. For more information, call 1-800-4 NORTEL, or visit us at www.nortelnetworks.com/3YDY

NORTEL
NETWORKS

How the world shares ideas.



Nortel Networks, CallPilot, Unified Networks, the Nortel Networks logo and "How the world shares ideas" are trademarks of Northern Telecom © 1999 Northern Telecom
All rights reserved. *CallPilot is compatible with MS Outlook, Lotus Notes, Netscape Messenger, Eudora Pro and other IMAP 4 compliant e-mail clients.

LACK OF LOG-IN LIMIT POSES SECURITY RISK

Free E-mail gives hackers too good a chance to guess passwords

BY ROBERTA FUSARO

MAYBE THOSE free E-mail services on the Web are too forgiving. They allow unlimited attempts for users to log in to their E-mail accounts — and that gives hackers plenty of opportunities to figure out the password that works, a

security expert said last week.

But several vendors contacted by Computerworld said they are finding ways to fix the problem.

Most corporate E-mail systems will let a user try to log in three to five times but then lock him out and require him to contact a network administrator to gain access, said Ira

Winkler, president of Information Security Advisors in Severna Park, Md.

By contrast, some free Internet mail systems — such as Yahoo Inc.'s YahooMail, Excite Inc.'s Excite Mail and Microsoft Corp.'s Hotmail — allow unlimited log-on attempts. That gives hackers multiple shots at guessing an E-mail ac-

count's password, Winkler said. And that password-cracking process could be automated, he said.

The free mail-service providers also don't notify an account holder that a hacker has been making failed log-on attempts, Winkler said. "That's just bad [security] practice," he said.

The ubiquity and easy access to free E-mail services has attracted more and more business users, Winkler said. And some companies, such as American Express Travel Related Services Co., are using free E-mail as a means of branding and attracting new customers to their Web sites.

Hotmail officials said they're working on a fix but wouldn't elaborate. A product manager for Hotmail said no E-mail accounts have been compromised in this way, and the company feels the possibility of a break-in is remote.

A spokeswoman for Yahoo in Santa Clara, Calif., said the company recently implemented new security measures to prevent multiple log-ins from invaders, but she wouldn't offer specifics. "It will lock up the account after a certain number of attempted log-ins," she said.

Excite officials in Redwood City, Calif., hadn't responded by press time to a request for comment. ▀

Continued from page 1

Users Buy In to Software Rentals

another way to provide the capabilities of our products to a different set of customer needs," said Peter Boit, general manager of worldwide volume licensing at Microsoft.

Meanwhile, smaller industry players, such as Corio Corp., FutureLink Distribution Corp. and Interliant Inc., continue to trot out new customers, who pay a monthly fee to tap into an ever-expanding variety of applications offered by the service providers that hold licenses to the software.

Among them is Richard Heaps, chief operating officer at Redwood City, Calif.-based Clarent Corp., which expects to cut costs by up to 30% during the next five years by renting PeopleSoft Inc. financial and manufacturing applications from Corio.

Clarent will be up and running on the software in four months, a feat it could never have accomplished in-house with its five-person IT group, Heaps said.

By outsourcing the implementation and renting the software from Corio, "we can literally go from generation zero to state-of-the-art systems in one leap and not add anything to our overhead internally," he said.



RESULT'S Rob Skeet:
Company pays \$200 per workstation for apps each month

For example, Result Communications Ltd. in Calgary, Alberta, turned to FutureLink for network operating software and services because it had neither the staff nor the expertise to build and maintain a complex network plus a wide range of graphics and business software, said Rob Skeet, director of new media.

So instead, Result pays a monthly fee of \$200 per workstation for FutureLink to deliver both Macintosh graphics applications and Windows-based business applications over a single network. FutureLink's offering is based on technology from Citrix Systems Inc. in Fort Lauderdale, Fla., that it rents out to customers of its network services.

"The Citrix technology, which sits on top of the operating system software, lets us of-

fer up any application over any operating system to any hardware platform," said FutureLink CEO Cam Chell.

Calgary-based FutureLink, which bills itself as a computer utility, also rents financial applications from Great Plains Software Inc. and customer management software from Onyx Corp.

In all those cases, "the most important thing happening is that ownership of software is changing. People are starting to look at software more as a service than as property," Wainwright said.

Starting Small

For now, nearly all the vendors are targeting the software rentals at midsize companies with fewer than 1,000 users. But eventually, observers expect the concept to catch on with larger companies, which also are having problems recruiting, training and retaining skilled IT workers.

"I think we'll see IT departments using rental models internally," said Robert Dana, vice president of product management at Interliant. He added that he foresees service providers hosting and supporting a company's custom applications, which they will turn around and serve up to users in exchange for a monthly or per-transaction fee.

Interliant is taking an altogether different approach from other companies in the blossoming applications services market. Rather than renting packaged software, the Houston-based service provider is serving up "a catalog of new

applications that were designed to be Web-based from the beginning," Dana said.

Those include an online registry service that electronically records and verifies rights to intellectual property and project software that lets geographically scattered teams

use a private Internet-based database for a monthly fee of about \$15 per user.

Another vendor, Biztone.com, a Malaysian start-up, plans to offer a Java-based enterprise resource planning system designed from the start as a rental-only application. ▀

Continued from page 1

EDS and MCI Swap Outsourcing

Brown, chairman and CEO of EDS.

EDS will outsource the bulk of its global network to MCI WorldCom in a 10-year agreement valued at \$6 billion to \$8.5 billion.

In return, MCI WorldCom will outsource a major portion of its information technology services to EDS in a 10-year deal worth between \$5 billion and \$7 billion. EDS also will acquire MCI Systemhouse, the IT services arm of WorldCom, for \$1.65 billion.

MCI Systemhouse delivered \$1.7 billion in revenue last year but suffered from flat sales and a failure to win big-name contracts, MCI officials said.

Changes to Come

Industry watchers said MCI Systemhouse clients probably won't see changes in their service in the near term, but prospective customers will see a flurry of changes.

They "need to stop very quickly and wait for some of this chaos to die down," said Dean Davison, an analyst at Meta Group Inc. in Los Angeles.

les. "We will see significant and very dramatic changes in the sales force, processes, pitches and messages in the next 60 to 90 days."

For existing MCI Systemhouse customers, executives plan to tap into EDS's wide-ranging in-house services.

"We will now have much more breadth," including applications and consulting experience, "things that we didn't have," said John Sidgmore, vice chairman of MCI WorldCom.

Together, the companies plan to sell networking services to business and government agencies worldwide.

EDS and MCI WorldCom officials said they will market each other's services but will let customers bring in other service providers.

As part of the agreement, 12,000 MCI WorldCom employees in the U.S. and Canada are expected to join EDS, while 1,000 EDS network employees will be offered employment at MCI WorldCom.

The outsourcing arrangements and employee transfers should be finalized by May. ▀

**"At Sony, we installed
WebFOCUS at 9:30."**

**I developed reports myself and
put them on the Web by noon."**



How does Sony Electronics put so many great products in the hands of consumers? They use WebFOCUS to put up-to-the-minute inventory data in the hands of their managers.

WebFOCUS is a powerful Web reporting and analysis system that can access any database and platform, so it was easy to consolidate data. And it's so productive developers were able to put new reports on their intranet in minutes.

Gary Fisher, Data Warehousing Manager at Sony Electronics says, "It gives everyone from senior executives to operational staff the answers they need when they need them."

Now that's remote control.

www.ibi.com/scw

**Information
Builders**

UNITING THE WEB
AND THE ENTERPRISE

As with every new piece of enterprise technology,
someone has to try it first.



Microsoft

Where do you want to go today?™

The good news is, it won't be you.

Introducing Microsoft® SQL Server™ 7.0, tested and proven in companies like Pennzoil and HarperCollins.* With an impending merger on its hands, Pennzoil faced a rapid increase in its user base for SAP™ R/3.™ In order to handle this mission-critical load, Pennzoil turned to SQL Server 7.0. Then there's HarperCollins. The publishing leader uses the SQL Server 7.0 data warehousing platform to process hundreds of gigabytes of data in order to make smarter and faster business decisions. To see who else is deploying Microsoft SQL Server 7.0 in their enterprise go to www.microsoft.com/sql/



WHERE ARE THE THIN CLIENTS?

Network computers haven't stormed PCs, but IBM sees markets where they make sense

LAST YEAR was supposed to be the year of the network computer. But only half a million thin clients were shipped last year, a number industry players hoped they would see in 1997. **Edward Petrozelli**, recently appointed to head IBM's network computer division, acknowledges that thin clients haven't stormed the market but says IBM saw sales rise last year.

In an interview last week with Computerworld senior writers Stacy Collett and Stewart Deck, Petrozelli discussed where thin clients work and where PCs are better.

Q: In what vertical markets are thin clients working well?

A: We're seeing finance, security and insurance to be very early adopters and rolling out large numbers [of thin clients] because of their need to connect to the Internet. Many of their applications are spread across different servers.

Right behind that we're seeing retail and distribution. We're seeing [them] do everything from checking inventory, to linking to suppliers, to providing their own employees with access to benefits information.

Q: Are there businesses where thin clients are not a good fit?

A: If you're doing sophisticated CAD [computer-aided design], designing airplanes, it's probably not a good fit. Also, an environment where every end user has a different suite of personal applications [also is a mismatch].

Q: Will customers continue opting for a mix of thin clients and PCs in 1999?

A: Our customers are saying there is a need for both. With

some of the financial institutions or insurance companies, 70% to 80% of devices may be thin clients. Others may be a 50-50 split depending on what the users are doing.

As new applications and other pervasive devices come out, there will be PCs, thin clients and some handheld devices out there that hook into the same environment.

Q: Critics say all the software needed to run thin clients isn't available. Where is the software today?

A: We look at thin clients as [they provide] function — access into legacy apps, on into the Internet space, moving up into being able to run Java applets. That software suite is now there. It is not dependent on Java.

There's a lot of functionality in the browser space that enables [users] to access the Internet [or] multiple servers in their own environment. That suite has rapidly ramped up. We're also seeing business partners that now have their applications enabled for a thin-client environment. SCO, the largest Unix provider on an Intel chip base, has implemented thin clients across their new operating system going out this month. ▀



EDWARD PETROZELLI:
IBM's customers
see need for both
PCs, thin clients

New Fixes Issued for NT 4.0

BY SHARON GAUDIN

Microsoft Corp. has issued a set of fixes for its Windows NT 4.0 Service Pack 4.0, released last month.

The fixes repair a bug that hinders some users from installing year 2000-compliant fixes that are part of the service pack. And another fix updates the Java virtual machine, bringing it into compliance with a federal court's order to make Microsoft's Java implementation follow Sun Microsystems Inc.'s standard, per Sun's Java license.

"The joke around here is, 'Which bugs did the service pack fix and which bugs did it create?'" said Bob Frase, director of information systems at PACE International Union, a paper workers union in Nashville. "Waiting a while before you download anything is almost becoming rule of thumb with Microsoft" because of frequent bugs in both initial software and subsequent service pack releases, he said.

"There were so many updates in that service pack —

600 new files — that I'm not surprised there were some problems," said Bill Peterson, an analyst at International Data Corp. in Framingham, Mass. But he said few users would be affected by the original bugs.

The year 2000 bug affects users who have Site Server Express 2.0 and MSMQ 1.0 or 1.0E message queuing on the same PC. The service pack's year 2000 update unintentionally uninstalled MSMQ, a Microsoft spokesman said.

The fixes can be downloaded from www.microsoft.com/ntserver. Anyone who has downloaded Service Pack 4 doesn't need to download the pack again. ▀

11 Nations Form Alliance Group to Tackle Y2K

U.S. first to contribute financial backing

BY MATT HAMBLEN

Representatives from 11 countries have created the International Y2K Cooperation Center to help coordinate multinational efforts to fix the bug.

The center's formation, announced Feb. 5, grew out of a December meeting at the United Nations, where delegates from 120 countries requested an ongoing coordinating group to aid international coopera-

tion on year 2000 fixes.

The Washington-based center will receive operating funding through voluntary donations to the World Bank. Nations will be asked to contribute expert year 2000 advisors to the center as well.

The U.S. has pledged \$12 million to the World Bank for such efforts, the only financial backing so far.

The center won't appropri-

ate funds to nations such as Russia, which recently raised its estimated bill for year 2000 fixes to \$3 billion (see related story, page 44). But it will assist international groups such as the International Telecommunication Union and the International Atomic Energy Commission by sharing information about year 2000 efforts, a spokesman said.

The 11-nation steering committee includes John Koskinen, chairman of the President's Council on Year 2000 Conver-

sion, and year 2000 coordinators from Bulgaria, Chile, Iceland, Japan, Mexico, Morocco, the Netherlands, the Philippines, the Republic of Korea and the U.K.

The director is Bruce McConnell, past chief of information policy and technology at the U.S. Office of Management and Budget.

Analyst Howard Rubin of Rubin Systems Inc. in Pound Ridge, N.Y., said the center was needed. "Until now, there's been no way to pull together information from key groups such as the [International Telecommunication Union] for sharing," he said. ▀

Better Links For Embedded Devices

Sybase, Wind River to test integration with databases

BY STEWART DECK

Sybase Inc. and Wind River Systems Inc. last week announced they will work together to provide better links between far-flung embedded database devices — such as inventory scanners, intelligent vending machines or manufacturing systems — and central data repositories.

Sybase will integrate its SQL Anywhere database and its UltraLite deployment technology into Wind River's Tornado application development software to create a development platform for embedded database devices.

A beta program for the technology will begin in the second half of this year.

The technology was designed to give users "a standard database interface to create applications in memory-constrained environments" so they won't have to invent their own application programming interfaces, according to Sybase.

Corporate Target

The partnership also was designed to improve corporate connectivity and remote management and provide more data from remote devices through their embedded database systems.

Paul Zorfass, a Waltham, Mass.-based analyst at International Data Corp. and First Technology Inc., said the Sybase/Wind River partnership should help answer complaints that smart handheld devices are neither robust nor reliable enough.

"This is a big step toward developing [a reliable infrastructure] by realistically extending the corporate environment into client-type devices and bringing high-performance products into the embedded world," Zorfass said. ▀

See ADPAC at SHARE in
San Francisco. Booth #709



Most companies are running on a legacy and a prayer.

Before you move to ERP, you'd better know what's on the mainframe.

The programmers who wrote the legacy code are long gone. Programs have been patched together over the years, with no reliable documentation. Things work, but no one really knows how. All good reasons to move to ERP. And all good reasons to let ADPAC's SVCommands tell you everything you need to know, before you need to know it.

SVCommands is the most powerful reverse engineering tool available to mainframe programmers, analysts and consultants today. It documents relationships. Delivers application inventories at the system level. Provides functional analysis at the program, application, and enterprise level. Finds code no longer used, and identifies missing source code. In short, it delivers all the critical information that will help make your move to ERP as glitch free as possible.

The ADPAC SystemVision family includes a number of powerful maintenance and reengineering tools. You'll find them on IBM and compatible mainframes in many of the world's largest corporations and utilities, and on university computer systems and critical government mainframes. Find out more from ADPAC, or from one of our Consulting Partners, including Renaissance Worldwide, Intertec Communications, The Trotter Group, TranSys, and MTS People's Source.

**Now! ADPAC SVReview
verifies Y2K changes**
Provides independent review
Supports due diligence
Delivers complete reports
and comprehensive audit trails



Business
Partner

ADPAC
THE SCIENCE AND ART OF PROGRAMMING

www.adpac.com
800-797-8439

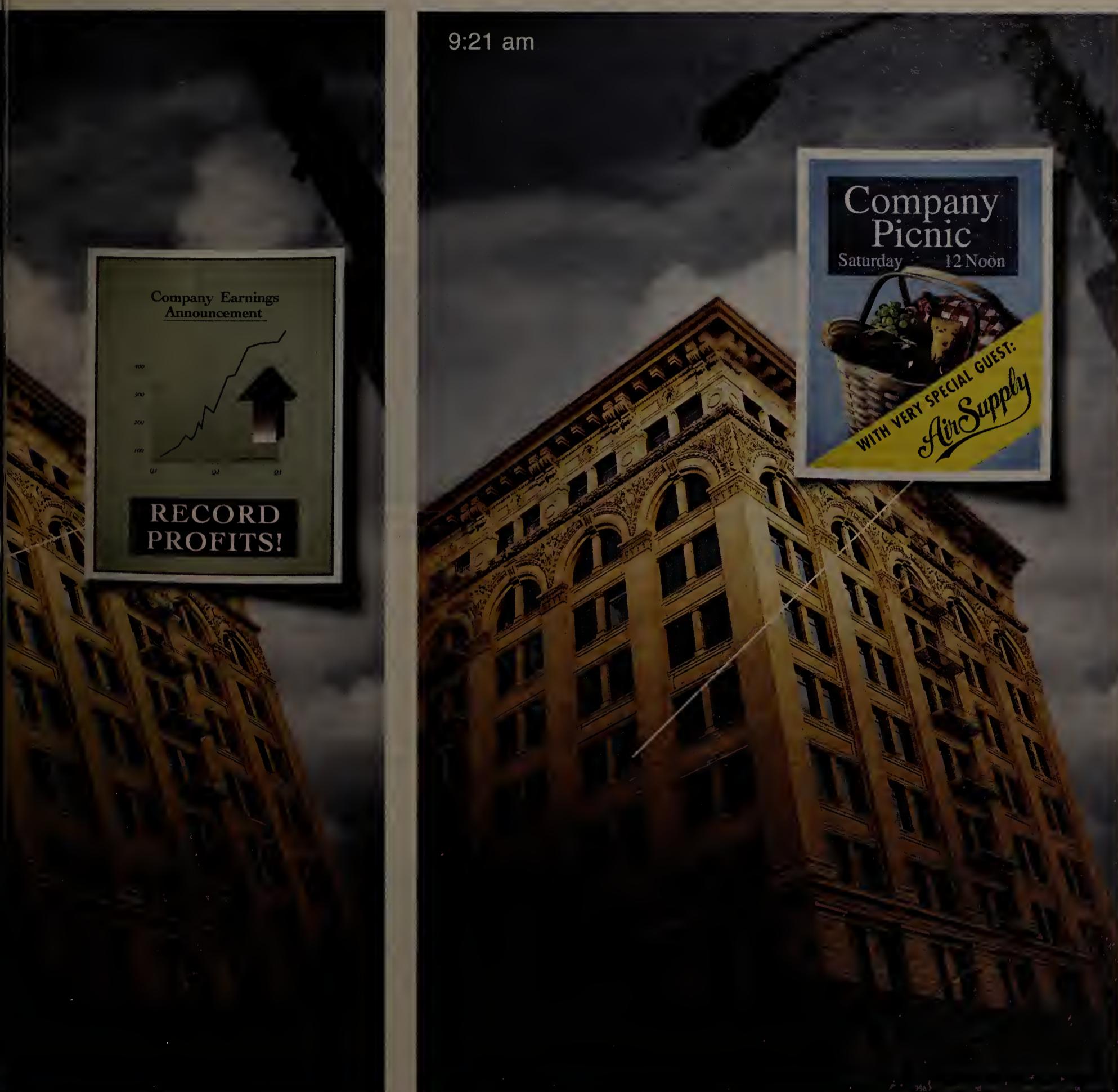


HP. Better color, no matter what you're printing.

Introducing a new line of HP Color LaserJet printers. Be it good times or fantastic times, people want great color printouts. Which is why our new fast and affordable

HP Color LaserJet printers start at \$2,499.

9:21 am



Color LaserJet printers offer our exclusive ImageREt Color Layering technology. Rather than placing red dots next to yellow dots to create the illusion of orange, our process literally mixes the colors to create real orange. Or maroon. Or millions of other colors. All at impressive printing speeds, up to 6 ppm. Visit www.hp.com/go/officecolor.

USER VOICE IS MISSING FROM MICROSOFT TRIAL

Potential government antitrust remedies may increase IT choices, add complexity

BY KIM S. NASH

WHEN THE federal antitrust trial of Microsoft Corp. began in October, legal experts and industry pundits eagerly pondered what could happen to the vendor if it lost.

Microsoft would receive its comeuppance and be forced to strip the Internet Explorer browser from its Windows operating system, some said. Others speculated that the company would simply settle the case to avoid the kind of protracted, costly courtroom war that bedeviled IBM for 13 years.

Neither scenario appears likely now, 18 weeks into the trial at the U.S. District Court in Washington. So what's left? Based on interviews with lawyers, information technology managers and economists, Computerworld has identified five key remedies the government could impose — and their potential impact on IT buyers (see chart).

David Johns, CIO at Owens

Corning, offers views that are typical among IT managers. Though Microsoft is an aggressive company that has both positive and negative influences on the industry, too much government intervention would be worse, Johns said.

"Let's be reasonable. We don't want the industry to be marred by government interference," he said, stressing that he hasn't seen Microsoft use any unfair tactics in its dealings with Owens Corning. The Toledo, Ohio-based manufacturer has standardized on Microsoft products for both PCs and servers.

The Microsoft Squeeze

The best remedy for Microsoft wrongs — should the U.S. Department of Justice prove any have occurred — is to prohibit exclusionary licenses, he added. That is, the court should stop Microsoft from squeezing PC makers to favor Microsoft applications in order to get good prices on Windows, Johns said.

"That," he said, "would pro-

mote competition."

But first, Judge Thomas Penfield Jackson must rule that Microsoft is a monopolist, said Bob Rubin, CIO at Elf Atochem North America Inc. in Philadelphia. So far, no court, no judge, no binding legal paper ever has labeled Microsoft with the dreaded M-word. Microsoft spokesmen often point that out.

But if Microsoft were found to hold monopoly power, it would, under antitrust law, have to abide by more restrictive rules than other companies.

"Regardless of how they want to twist numbers, Microsoft has a monopoly on the desktop," Rubin said. "When you buy a new computer, it comes with [Microsoft] software, and there are, today, no practical alternatives for a CIO."

Meanwhile, the narrow browser-bundling issue that largely propelled the Justice Department's investigation of Microsoft now is a loser's argument for the government,

said James Brock, an economist at Miami University in Oxford, Ohio.

A June 1998 appeals court ruling in a related case in effect said that Microsoft can indeed



ELF ATOCHEM'S BOB RUBIN: "Regardless of how they want to twist numbers, Microsoft has a monopoly on the desktop"

combine the once-separate browser and Windows.

Brock votes for carving Microsoft into pieces. "Unless you remedy the structural existence of the monopoly, then government will constantly be involved in refereeing and handling complaints," he said. "That's a path toward regulation no one wants."

That's why simply tweaking the consent decree Microsoft already operates under is unlikely to happen, according to

Terry Moritz, head of litigation at Goldberg, Kohn, Bell, Black, Rosenblum & Moritz Ltd. in Chicago.

After the Justice Department chased Microsoft for alleged antitrust violations in the early 1990s, the adversaries signed a deal in 1994 widely viewed as a slap on the wrist for Microsoft. Essentially, Microsoft agreed not to use certain restrictive clauses in its license agreements. The decree never mentioned it being a monopoly.

Neither Microsoft nor the Justice Department is apt to agree to any new settlement after having weathered a full-blown trial; both sides have gone too far to strike a bargain now, Moritz said.

Yet IT buyers — whether they are for or against Microsoft — don't have a strong voice at the trial.

The Justice Department originally intended to have Scott Vesey, an IT manager at The Boeing Co., take the stand, but Vesey was replaced by a Sun Microsystems Inc. executive just before the trial started. Vesey's written and video depositions are buried in the trial record. Now, not a single IT manager will testify.

Five Ways the Microsoft Antitrust Case Could Affect IT Buyers

A government victory over Microsoft could make the lives of IT folks easier or tougher, depending on the remedy chosen

REMEDY	ARGUMENTS FOR	ARGUMENTS AGAINST	IMPACT ON TECHNOLOGY BUYERS
Split Microsoft into separate companies, such as one for operating systems and one for applications.	Microsoft's monopoly power can be tempered only by drastic structural changes to the company.	Tampering with one of the world's most successful companies could damage the U.S. economy.	More competition in the Windows market could lower prices, increase choices. But it could make more integration work for corporate users, especially those who have standardized on Microsoft products.
Treat Windows as an "essential facility" and force Microsoft to make its source code freely available.	Windows is too important to be controlled by a single entity.	Windows is Microsoft's intellectual property; the government can't usurp it.	A freewarelike Windows would mean low license fees — or no fees at all. But reliable maintenance and future advancement of the operating system could falter.
Force Microsoft to make public all Windows application programming interfaces.	Eliminates Microsoft's inside knowledge of Windows that other application developers don't have.	Inside information about Windows is hard-won intellectual property that should be protected.	Optimists hope for more bountiful software choices as developers would be able to write applications that work as well on Windows as Microsoft's own applications.
Block Microsoft contracts that induce PC makers to exclude competing software.	Stops Microsoft from unfairly wielding operating system power to thwart competition.	Microsoft's contracts are legal and examples of the company's business savvy.	IT managers would gain more control over which software products they buy with their PC hardware, possibly saving money.
Monetary fine for causing damage to the market.	In conjunction with some other remedy, would help address market damage caused by Microsoft's business tactics.	An easy out for a company with, at last count, \$19.2 billion in cash; hard to assess amount of market damage, if any; doesn't address Microsoft's past behavior or guard against future wrongdoing.	None.

LOTUS DELIVERS TEAMWARE

QuickPlace tool joins growing field

BY ROBERTA FUSARO

THE EMERGING category of quick-hit, intranet semi-suites called "teamware," which is meant to aid collaboration among employees, got a boost last week with IBM subsidiary Lotus Development Corp.'s announcement of QuickPlace.

Several companies offer such products, which let workers share information and files over the Web by letting them trade and edit documents, track meetings in common calendar folders and message one another.

There will be about 20 million to 24 million teamware users by 2002, estimates Inter-

national Data Corp. in Framingham, Mass.

Teamware supports project-oriented collaboration but isn't regarded as a replacement for traditional E-mail and calendaring systems or full groupware platforms such as Lotus Notes and Microsoft Exchange, said Tom Austin, an analyst at Gartner Group Inc.

And unlike full-blown groupware, teamware relies on end users, not information technology specialists, to set up and manage the system, he said.

"All you need is [a browser], access to the Web, and away you go," said Phil Usher, a senior vice president of IT at Countrywide Home Loans Inc. in Calabasas, Calif. The company has been using a beta version of QuickPlace to communicate with several partner companies, he said.

QuickPlace, like other teamware products, can work with an E-mail client or a browser.

For E-mail clients, QuickPlace supports just Notes. It costs \$99, but will be included in Notes 5.0 and Domino 5.0 this spring. Several partners

plan to host the application online in the second quarter.

QuickPlace, Lotus' second teamware product since Instant TeamRoom in 1997, most directly competes with ERoom from Instinctive Technologies Inc. and Involv from Change-

point Corp. and US West Inc., Austin said.

Lower-level collaboration tools include Microsoft Corp.'s free NetMeeting and Netopia Inc.'s Timbuktu products, which let small groups share documents, messages and presentations. But neither integrates with E-mail clients like teamware products do. ▀

Sun Creates User Network

Unix Server users share with peers

BY JAIKUMAR VIJAYAN

Users of Sun Microsystems Inc.'s Unix servers looking for help on high-availability issues soon will be able to turn to their peers for guidance through a Sun-sponsored network.

Sun last week launched the SunUp Network, under which users can trade information on best practices and benchmarks relating to application availability. The network also will carry information from The Uptime Institute in Santa Fe, N.M.

The program formalizes a two-year effort by Sun to work with several of its largest customers to identify and resolve

problems leading to server failures and application down-times. Under the SunUp program, Sun also will make information gathered under that effort available to whoever joins the network.

"I think it is a great idea," said Ann Glisan, manager of systems development at Federal Express Corp.'s data center in Colorado Springs. "What they have done is create a task force of customers that can talk and share information on high-availability issues." ▀

HP Color LaserJet 4500 Series printers Featuring ImageREt Color Layering

- Designed for workgroups of up to 20 people
- 4 ppm color, 16 ppm black
- Supports a wide range of media including envelopes, labels, transparencies and soft-gloss paper
- 8 1/2" x 14" color auto-duplex option
- High volume paper handling—up to 900 sheet input capacity

Starts at \$2,499



HP Color LaserJet 8500 Series printers Featuring ImageREt Color Layering

- Designed for departments of up to 50 people
- 6 ppm color, 24 ppm black
- Full range of in-house color printing features—up to 11" x 17" full-bleed for flyers, newsletters, brochures on a wide range of media
- 11" x 17" color auto-duplex option
- Very high volume paper handling—up to 3,100 sheet input capacity

Starts at \$5,999

HP. Better color, no matter what you're printing.

For more information about our Color LaserJet printers, visit www.hp.com/go/officecolor.

hp HEWLETT
PACKARD
Expanding Possibilities



Performance. A range of screaming-fast Intel® Pentium® II processors up to 366MHz. Spacious hard drives up to 6.4 billion bytes. No matter which Satellite® 4000 series model you choose, you can count on plenty of horsepower and capacity at a very competitive price.



Brilliance. Stunningly vivid TFT active matrix displays rival the viewable area of desktop screens. 3-D sound systems with Stereo Bass Reflex speakers ensure dramatic audio. Features like these enhance your most demanding multimedia applications with extraordinary dynamic impact.



When you have to trim the budget,
but you can't afford to cut performance.

Connectivity. 56K V.90 modems accelerate Internet and remote access to the new standard in high-speed communications. The Satellite 4000 series connects easily to desktop accessories and networks through convenient built-in ports or optional docking accessories.



Design. The slim, convenient all-in-one design, including built-in 24X max. speed CD-ROM, floppy and hard disk drives, give you the tools you need without any add-ons or plug-ins. So you get top performance at an affordable price from the world leader in portable computing. Call 1-800-TOSHIBA or visit www.toshiba.com.

TOSHIBA

The World's Best Selling Portable Computers.

These powerful solutions rest



Satellite® 4080XCDT

- Intel® Mobile Pentium® II processor 366MHz
- 6.4 billion byte hard disk drive
- 14.1" dia. TFT active-matrix color display
- 64MB high performance Synchronous DRAM
- 24X max. speed CD-ROM
- Integrated 56K V.90 Modem
- ESS audio with 3D Sound Support
- Windows® 98 operating system

\$3,199

Satellite 4020CDT

- Intel Mobile Pentium II processor 300MHz
- 6.4 billion byte hard disk drive
- 13.3" dia. TFT active-matrix color display
- 64MB high performance Synchronous DRAM
- 24X max. speed CD-ROM
- 3Com-Noteworthy® 56K PC Card modem with V.90 support
- Yamaha 3D sound effect-enabled
- Windows 98 operating system

\$2,499

Satellite 4010CDT

- Intel Mobile Pentium II processor 266MHz
- 4.1 billion byte hard disk drive
- 12.1" dia. TFT active-matrix color display
- 32MB high performance Synchronous DRAM
- 24X max. speed CD-ROM
- 3Com-Noteworthy 56K PC Card modem with V.90 support
- Yamaha 3D sound effect-enabled
- Windows 98 operating system

\$1,899

Satellite 4010CDS

- Intel Mobile Pentium II processor 266MHz
- 4.1 billion byte hard disk drive
- 12.1" dia. Color bright dual-scan color display
- 32MB high performance Synchronous DRAM
- 24X max. speed CD-ROM
- 3Com-Noteworthy 56K PC Card modem with V.90 support
- Yamaha 3D sound effect-enabled
- Windows 98 operating system

\$1,399



To find out more, call 1-800-TOSHIBA. Or visit www.toshiba.com.

comfortably on your bottom line.



Equium™ 7100D

- Intel Pentium II processor 450MHz
- 128MB high performance Synchronous DRAM
- 8.0 billion byte hard disk drive
- 32X max. speed CD-ROM
- Integrated 3Com Fast EtherLink® XL 10/100
- Instant Access Door for improved upgradeability and serviceability.
- Value Keyboard
- Windows 95 operating system
- Desktop chassis with 5 drive bays and 4 slots. Slimline chassis available with 3 drive bays and 2 slots.

\$1,549*

7100D: PV1046U-PD4J0
7100S: PV1045U-PD4J0

Equium 7100D

- Intel Pentium II processor 400MHz
- 64MB high performance Synchronous DRAM
- 6.0 billion byte hard disk drive
- 32X max. speed CD-ROM
- Integrated 3Com Fast EtherLink XL 10/100
- Instant Access Door for improved upgradeability and serviceability.
- Value Keyboard
- Windows 95 operating system
- Desktop chassis with 5 drive bays and 4 slots. Slimline chassis available with 3 drive bays and 2 slots.

\$1,199*

7100D: PV1046U-D34J0
7100S: PV1045U-D34J0

Equium 7100S

- Intel Pentium II processor 350MHz
- 64MB high performance Synchronous DRAM
- 6.0 billion byte hard disk drive
- 32X max. speed CD-ROM
- Instant Access Door for improved upgradeability and serviceability.
- Value Keyboard
- Windows 95 operating system
- Slimline chassis available with 3 drive bays and 2 slots. Desktop chassis with 5 drive bays and 4 slots.

\$999*

7100S: PV1045U-324J0
7100D: PV1046U-324J0

TOSHIBA

Portables. Desktops. Servers.

BRIEFS**Sybase Gets DB Maker**

Sybase Inc. last week announced it has purchased Data Warehouse Network, an Ireland-based, privately held provider of prepackaged business intelligence applications. Data Warehouse Network's offerings target industries including retail banking, insurance, telecommunications, health care and utilities. The products contain data models specifically designed for those industries and will be merged into Sybase's Business Intelligence Division. Terms of the deal weren't disclosed.

Cognizant Revenue Up

Cognizant Technology Solutions Corp., a software development and maintenance company in Teaneck, N.J., last week reported that revenue for the fourth quarter increased 143% to \$19.5 million from \$8 million in the same period a year ago.

Net income was \$2.6 million in the fourth quarter. Kumar Mahadeva, chairman and CEO, said the company has substantially reduced its reliance on year 2000 remediation business and is achieving growth from clients who want to go beyond year 2000 projects.

TRW Spins Off Unit

TRW Inc. last week launched an Internet security company, called E-Certify, in Reston, Va., to provide security technologies and consulting to businesses engaged in electronic commerce.

The spin-off will use TRW security techniques and technologies developed for high-security government agencies and apply them to the private sector, such as the health care, financial and insurance industries. The new company will work closely with TRW's systems integration unit.

Palm Unit CEO Named

3Com Corp. has tapped VeriFone Inc.'s president and CEO to head its Palm Computing division. Robin Abrams, 47, assumed her post as Palm Computing's president Feb. 12. She takes over for Janice Roberts, who was serving as acting president.

WALL ST. THROWS A WET BLANKET ON LYCOS DEAL**Popular Web portal, USA Networks looking to create E-commerce Goliath**

BY SHARON MACHLIS

ONE OF THE LAST independent top-10 Internet portals announced a partner last week: Lycos Inc. said it would join forces with part of USA Networks Inc.

The move means Lycos would be under the same corporate tent as the Home Shopping Network and Ticketmaster Online-Citysearch Inc. Home Shopping Network sells goods on both television and the Internet; Ticketmaster Online-Citysearch sells tickets for sports and entertainment events and publishes local Internet city guides.

The combined USA/Lycos Interactive Networks Inc. can become "the largest E-commerce network anywhere," said Lycos President and CEO Robert J. Davis, who also will be president and CEO of the new corporation. "It's the opportunity to get very big, very fast. You create scale... I think we have created a watershed event for this industry."

USA Networks head Barry Diller, a high-profile media executive, would be the new company's chairman. The complex stock deal would give Lycos shareholders, who must approve the plan, a 30% stake in the newly merged entity. However, some major shareholders have expressed disappointment with the terms.

Internet analysts generally praised the move, saying Lycos gets access to a heavy-duty order fulfillment center in Home Shopping Network, as well as a solid entry into more localized commerce opportunities.

"Ticketmaster is the killer app for local commerce," said Melissa Bane, an analyst at The Yankee Group in Boston.

However, Wall Street hammered the deal: Lycos stock plummeted 26% the day of the announcement. Investors apparently were disappointed that USA would pay just slight-

ly more than last Tuesday's market price for Lycos stock.

Lycos, based in Waltham, Mass., has made several acquisitions in recent years and now is a network of sites that includes HotBot.com, Tripod.com and Angelfire.com, as well as its flagship Lycos.com. All together, the Lycos properties were the fourth-most popular destination on the Web, reaching



LYCOS CHIEF Robert J. Davis considers the USA Networks deal a "watershed event"

46.5% of all Internet users, according to Media Metrix Inc. in New York.

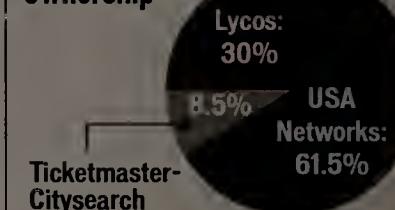
But integrating that existing network with City-search and Home Shopping Network may take time, some observers warned.

But Lycos has bolstered its position as it tries to sell more goods via its site, analysts said. "From the point of view of E-commerce, it looks like a pretty good deal," said Barry Parr, an analyst at International Data Corp. in Mountain View, Calif. "It's a good step in a long journey."

DEAL HIGHLIGHTS**Proposed Partnership**

New USA/Lycos Interactive Networks Inc. deal includes:

- Lycos Inc. network, including Lycos, Tripod, Angelfire, HotBot
- Ticketmaster
- Home Shopping Network
- Internet Shopping Network/First Auction

Ownership**CA Acquisition to Bolster Outsourcing Power****\$435M takeover will fill a big need**

BY THOMAS HOFFMAN

Trying to bolster its small-but-growing professional services business, Computer Associates International Inc. last week made a \$435 million cash tender offer to acquire Jacksonville, Fla.-based Computer Management Sciences Inc. (CMSI).

AT A GLANCE**Computer Management Sciences Inc.**

Location: Jacksonville, Fla.

Employees: More than 900

Clients: Coca-Cola Co., Wachovia Corp., Merrill Lynch & Co., CSX Corp., Kemper Financial Services, Lockheed Aeronautical Systems Co.

1998 revenue: \$90.2 million

1998 net income: \$12.4 million

Specialties: Develops and installs applications, including object-oriented programs and relational database technologies. Provides IT outsourcing, facilities management and maintenance of legacy and client/server systems

The deal will provide the Islandia, N.Y.-based software giant with CMSI's blue-chip list of outsourcing clients, including Coca-Cola Co. and Merrill Lynch & Co., as well as application development services that CA has lacked, said Sterling Auty, an analyst at J. P. Morgan & Co. in New York.

Unlike some systems integrators, CMSI is "quite profitable," noted Gopi Bala, an analyst at The Yankee Group in Boston.

For the calendar year 1998, CMSI raked in \$12.4 million in profit on \$90.2 million in revenue.

CA, meanwhile, pulled in \$77 million in services sales for the fourth quarter, putting it on an annualized run-rate of \$400 million including CMSI sales, Auty said.

CMSI also brings a dozen "systems outsourcing centers" — regional centers that develop and run applications for customers — to CA's Global Professional Services unit.

Though that will certainly help CA domestically, analysts want to see CA follow through on its commitment to build another dozen outsourcing centers around the world to sup-

port its international professional services growth. To that end, Auty said he would like to see CA make a similar acquisition in Europe.

CA intends to grow its services business "organically and by acquisitions," said Sanjay Kumar, CA's president and chief operating officer.

International Flavor

Kumar said the company intends to begin establishing international outsourcing centers within 30 days of the close of the CMSI deal.

Since losing its \$9 billion bid for Computer Sciences Corp., CA has acquired four services firms, including Aventura Systems ASA, a Norwegian systems integrator that specializes in electronic commerce.

CA said it plans to close the CMSI acquisition within 30 days, pending regulatory approval.

One of the big challenges going forward for CA is to strike a balance between its own services business and the relationships it maintains with big services partners such as Electronic Data Systems Corp. and Andersen Consulting, Auty said.

POWER PRINTING.



microLaser™ 400

Print Speed: Up to 40 pages per minute

Duty Cycle: Up to 300,000 pages per month

Paper Input: 1,500 sheets std. up to 11"x 17"; plus 3,000 sheets opt.

Interfaces: Ethernet and parallel

Opt. Interfaces: IBM 5250 Twinax, IBM 3270 Coax, SCS, IPDS

Std. Features: Duplexing, internal hard disk drive

Year 2000 compliant

Do you need a network laser printer that races through your most demanding production applications? Meet GENICOM's microLaser 400. This powerhouse is perfect for high-volume production jobs such as month-end reports, batch printing and other mission-critical applications. Every detail of the microLaser 400 is designed for production printing, from long-lasting consumables to large paper handling capacity.

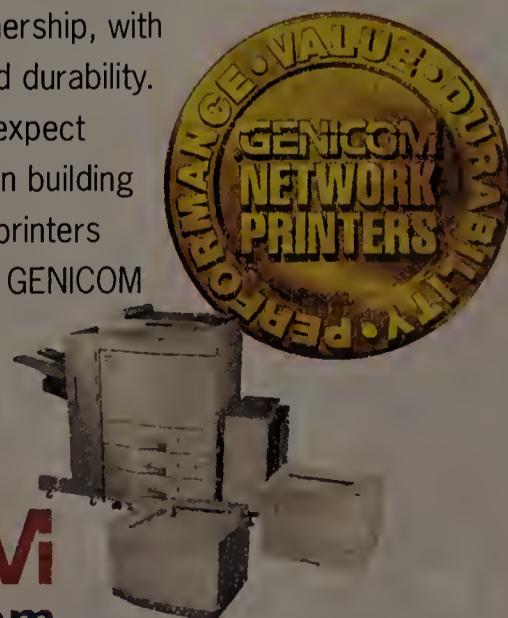
The result? Low cost of ownership, with outstanding performance and durability. Which is exactly what you'd expect from the company that's been building high-performance midrange printers for more than 25 years. Call GENICOM today for more information.

Mention "power" and receive a free gift.

**PRODUCTION
PRINTING UP TO
300,000 PAGES
PER MONTH.
NETWORK-READY!**

Copyright © 1998 GENICOM Corporation. GENICOM and microLaser are registered trademarks of GENICOM Corporation, all other product names are trademarks of their respective owners. One gift per person, while supply lasts.

GENICOM
www.genicom.com
1-800-GENICOM, Option 1,1



MARYFRAN JOHNSON

The silent majority

WE COULD CALL IT *Sex, Lies and Videotape, Part Deux.* What better title for the sorry spectacle in Washington these days as the trials and tribulations of the two Bills (Clinton and Gates) unfold? President Clinton's historic impeachment trial is anti-climactic in comparison with the courtroom theater being provided by Chairman Gates' discredited witnesses and doctored videotapes.

The lead government attorney, David Boies, has shown Gates and his top execs to be, at worst, outright liars. At best, they're mighty forgetful fellows.

Yet for the CIOs and IT professionals who actually buy Microsoft products — the consumers whom antitrust law is meant to protect — there's a curiously missing factor here. Where are your voices?

Among the dozen witnesses permitted for each side, the lone IT manager on the original list got bumped in favor of a vendor witness. Microsoft is fond of trotting out supportive users at its product announcements, but in its most dire legal challenge, the company completely ignored you all.

In the hundreds of stories written about this trial since its start in October, the ultimate impact on IT buyers has been largely ignored, as well. So we've tried to fill in a



MARYFRAN JOHNSON is executive editor of Computerworld. Contact her at maryfran.johnson@computerworld.com.

few of those blanks with our story this week (see page 24). Reporter Kim S. Nash talked with IT managers, lawyers and economists to identify five possible remedies the government might impose on Microsoft — and the impact each could have on your business.

The best remedy we found was this: Microsoft stops forcing PC makers into exclusionary contracts that keep competitors locked out. IT managers would gain control over which software

they buy with PC hardware, sparking true competition and the innovation that goes along with it.

The revival of the Mac and unexpected rise of the Linux freeware operating system show how eager users are for alternatives.

So even if the government loses this case, you know enough now about how Microsoft uses its monopoly power to demand changes in its business practices. Raise your voices. ▶



BILL LABERIS

The Supreme Court has just redefined IT's role in business

THE INTERNET and the Web have exploded onto the IT world and into our mainstream lives in a way that no one could have ever foreseen. But as the saying goes, you ain't seen nothin' yet.

Thanks to a ruling from a sharply divided U.S. Supreme Court late last month, we may well be poised at the starting line of an era of even more astounding Internet-related growth and development.

The decision upholds a 1996 Federal Communications Commission rule mandating that the local phone companies lease their local lines and network components at special rates to other providers. These phone companies heretofore had succeeded in keeping competition out of local markets, holding as their own the local connections built over the years with federally approved monopoly profits.

Now the high court has said, in essence, that these local lines belong to everyone, just like the highways we drive on. Everyone has a right to pay tolls and fees and drive on them.

Forget about what this means for increased competition in the telephone and voice-related business, because that \$100 billion U.S. business is small potatoes compared with the big enchilada. The real story here is that very high-speed Internet access — true broadband connectivity — is going to become widely available at rates comparable to what we pay for cable TV today. And it's going to happen in the next couple of years.

Still, the story here is not the affordable xDSL and cable modem network access services (and eventually wireless services) that are going to proliferate throughout the country. The story lies in the applications that these services will enable — applications that will change business and therefore IT almost overnight.

Just think of how an Internet world enabled primarily by standard analog modems has changed business already. Internet commerce is growing faster than even the most optimistic projections. Businesses such as bookselling, automobile dealing, securities trading and travel have undergone wrenching changes. Now think of what will hap-



BILL LABERIS is a consultant in Holliston, Mass., and former editor in chief of Computerworld. Contact him at bill@laberis.com.

pen when Internet access speeds improve tenfold, twentyfold, even fiftyfold over conventional modem access.

Within five years, if not sooner, auto dealerships will vanish, and cars will be built to order the way Dell builds PCs today. Travel agencies will disappear, as will home real estate agents. The sprawling shopping centers we've built will begin to empty out as homes are resupplied with everything from socks to orange juice the same, automated way that Xerox is resupplied with copier components on a just-in-time basis.

And who will be charged with making all the trains run on time in this radically altered world just over the horizon? You will, because IT is going to come front and center in a way only talked about previously.

That was some court decision. ▶

DAVID MOSCHELLA

The globalists are in charge, and they love IT

THE DAVOS MEN, and that much rarer species, the Davos women, met earlier this month in Davos, Switzerland. Every year, the global plutocracy convenes in this posh alpine resort to ponder our economic position and prospects. But now, thanks to the Web, even us hoi polloi can see and hear what the rich and powerful are thinking. If you didn't tune in, here's what you missed.

First, a disclaimer. This was the 29th meeting of the annual World Economic Forum. As far as I know, no one there ever predicted the end of the Cold War, the resurgence of the U.S. economy, the prolonged stagnation of Japan, the severity of the Asian contagion, the explosion of the Internet or most of the other major stories of our time.

Like most of us, the Davos people tend to assume that the future will be just a minor variation from the present. Although that approach always sounds safe and sensible, it's usually wrong.

So we can basically ignore any predictions about what will happen this year and beyond, especially since no one really said anything that couldn't be heard on Sunday morning talk shows.

That isn't meant as criticism; most of the Davos



DAVID MOSCHELLA is an author, independent consultant and weekly columnist for Computerworld. Contact him at dmoschella@earthlink.net.

people don't see themselves as prognosticators. They're primarily builders, leaders and managers. Therefore, what really matters is what they're thinking.

And there is nowhere better than Davos to get in touch with the current global business zeitgeist.

Ironically, the recent turmoil in Asia and Latin America has led to a remarkable degree of harmony and consensus.

Just as the collapse of socialism during the 1980s narrowed political debate down to what sort of capitalism one prefers, the failures of the Asian economic model in the 1990s have led to an unprecedented convergence around what once were described as predominantly American values.

Transparency, openness, deregulation and restructuring are now the watchwords in Europe, Japan, Brazil and elsewhere.

During the many global financial panics of last year, there were repeated calls to stem the rush to globalism, to set up Asian solutions for Asian countries and to curb corporate raiders and speculators.

But very little has actually happened. Malaysian President Mahathir Mohamad blamed the West for his country's troubles and was widely ignored.

Meanwhile, Mexico, Korea, Thailand et al have done little that isn't in the International Monetary Fund playbook. There are a thousand plans to soften or fine-tune globalism. However, there is almost nobody who wants to withdraw from it. You don't hear much about "Asian values" anymore.

Of course, the Davos people also are big fans of technology, and thus all that harmonization can't help but expand the information technology business. It seems like everyone now agrees with the once largely American notion that technology, restructuring and stability are in fact completely intertwined concepts.

Perhaps that's why the Davos press tends to treat technology CEOs as first among the business equals, like the rock stars at Woodstock.

How long this global love-in will last is anyone's guess. We haven't reached the end of history, and national interests will inevitably diverge. The real test of globalism won't happen until the whole world goes through a prolonged recession or an equivalent crisis.

But today, the Davos people are in charge, and they're using technology to steer the world toward an unprecedented level of uniformity.

Like it or not, we're all working for the Davos people, no matter where we live. ▶

READERS' LETTERS

Noble intentions; distressing results

I AM WRITING in response to "Let the Boys Be Mechanics: These Girls Want to Drive!" [CW, Jan. 18]. Technology, as I am sure anyone in the field would tell you, is a field composed of mechanics, not drivers. Without mechanics, what would the drivers do? They couldn't operate their car and couldn't change their own oil.

Without the aid and intellect of our technology mechanics, there would be no cell phones, beepers or Internet available for those drivers to operate. And certainly females are as welcome to the tools of the trade as males, which does not seem to be indicated at all in the article.

Instead, the girls are portrayed as mindless, gibbering mall rats — the exact stereotype that I believe the article was

trying to dispel.

I am distressed that a newspaper such as *Computerworld* would support such a wretched stereotype of our young women.

Jaclyn Neel
Wayland, Mass.
pak@mediaone.net

Failings of online banking software

I READ "A clash of cultures" [CW, Jan. 18] about the banking industry's lack of success with online banking software. Having worked in banking, I know of the industry's cultural roadblocks to online services.

However, since I have been spoiled by Wells Fargo Bank's Web-based online banking for about three years now, I have wondered why anyone would want to load special software on their PC (which is probably not available for Macintosh) and then connect to the bank.

Personally, I prefer to connect to my Internet service provider and do all my online services over the Internet with one connection, rather than having to dial up to separate locations for each service. It appears that online banking (with Wells Fargo being the rare exception) is not only behind times, but a software vendor such as Vertigo should have known better.

Gordon Hesketh
MIS manager
Louisiana Chemical Equipment Co.
LaPorte, Texas
gordon@heskco.com

Stories of survival

THANK YOU for having the courage to print "Champions of Women in Technology" [CW, Jan. 18] and its accompanying pieces. The articles give a rational and complete overview of what is being done and of what

still needs to be done to help women enter and stay in this great field. I especially liked the way the facts were presented about gender differences without sounding like we (females) are victims.

As a 20-year veteran of the computer field (data entry, operations and programming), I know how hard it is to stay in a male-dominated environment and survive with style and grace.

Thanks again, and I hope to see more articles of a similar nature in the future.

Jan Matherne
St. Paul, Minn.
jan.matherne@metc.state.mn.us

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-8931; Internet: letters@computerworld.com. Please include an address and phone number for verification.

JOHN GANTZ

IT: Big pressures, bigger rewards

THIS IS A GOLDEN AGE for IT — so stop whining. Hey, am I in a time warp here? Must be. I've just gotten a peek at some qualitative research a client conducted with more than 100 U.S. CIOs. In it, I read comments like these: "This business would be great if it weren't for end users. They screw up everything." "My CEO doesn't understand me or know what I do." "No one knows how complex this job is." "I train my people and then they leave."

Folks, these are the same beefs I heard 25 years ago when I'd interview MIS managers about departments using minicomputers and terminals

that ran Cobol programs. I heard them again 15 years ago when PCs and LANs were pouring into companies through every door and window. Now I hear them as we cross into the era of Internet computing.

I know the environment and the stakes have changed. Almost every application is now considered mission-critical. For instance, in an International Data Corp. (IDC) survey last year on Windows NT adoption, large companies said 42% of their applications were mission-critical. Welcome to the fishbowl.

And, yes, there aren't enough people to do the work. Again, according to IDC's forecast model, this year alone there will be more than 100,000 professional jobs that go unfilled in IT shops. But then, 25 years ago, we had the same gnashing of teeth about the shortage of Cobol programmers.

Do you think this environment is any easier for the marketing, sales, finance and management executives in your company? They're in the same fishbowl you are, facing the same mergers and acquisitions and running as much risk of being downsized. Even worse, in the new environment, they find their careers held hostage by technologies they don't understand, managed by people they often don't understand.

Besides, this time around, IT professionals have something to go along with all that pressure: the chance for fame and glory.

Twenty-five years ago, the most career-threatening event an MIS manager faced was a mainframe operating system conversion. If it was successful? Ho-hum. With PC/LAN implementations 15 years ago, the most career-threatening event was the switch to Windows. If that was successful? People got used to mice, and the company ran 1% better.



JOHN GANTZ is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at jgantz@idcresearch.com.

windows NT adoption, large companies said 42% of their applications were mission-critical. Welcome to the fishbowl.

And, yes, there aren't enough people to do the work. Again, according to IDC's forecast model, this year alone there will be more than 100,000 professional jobs that go unfilled in IT shops. But then, 25 years ago, we had the same gnashing of teeth about the shortage of Cobol programmers.

Do you think this environment is any easier for the marketing, sales, finance and management executives in your company? They're in the same fishbowl you are, facing the same mergers and acquisitions and running as much risk of being downsized. Even worse, in the new environment, they find their careers held hostage by technologies they don't understand, managed by people they often don't understand.

Besides, this time around, IT professionals have something to go along with all that pressure: the chance for fame and glory.

Twenty-five years ago, the most career-threatening event an MIS manager faced was a mainframe operating system conversion. If it was successful? Ho-hum. With PC/LAN implementations 15 years ago, the most career-threatening event was the switch to Windows. If that was successful? People got used to mice, and the company ran 1% better.

Today, if you can deal with these technology shifts, what are the potential rewards? Your company blasts past the competition, makes 10% more profit, gains 50% in stock market valuation and puts a stake in the ground for the next 20 years. And everyone knows it couldn't be done without IT! (End users and CEOs have learned at least that much in the past 25 years.)

So everything is mission-critical? Then make sure it all works. Not enough staff? Outsource. End users causing problems? Upgrade them. CEOs in the dark? Hire people who understand marketing and put them in charge of internal public relations.

This is not a chance to be missed. There are companies whose CEOs and end-user managers are singing the praises of IT. And they're not just high-tech leaders such as Federal Express, but also old-line, cost-driven companies like Dow Chemical.

Carpe diem. We won't pass this way again. ▶

JON CAMPBELL

The many flaws of Java should make you think twice

AS A 30-YEAR VETERAN software engineer, I wasn't looking forward to learning yet another language as well as a whole new lexicon associated with it.

But when I took my first Java course, I was pleasantly surprised: It really was enough like C and C++ that I could get the hang of it, and I liked the object-oriented perspective and some of the terminology. The method library was huge; it seemed that you hardly had to write any code at all. Writing simple Java programs was almost as easy as operating a toaster.

But some things made me uneasy about the Java language. On the technical side, calling native methods written in C or C++ is absurdly difficult. The lack of destructors is at best odd because they're necessary to avoid losing other resources — sockets, file handles, pipes — when the structures pointing to them are deallocated by the garbage collector.

More important for companies considering basing their operations in part on Java is what Sun's marketing calls its "total break" from C and C++. As a practical matter, Java could have been made to be relatively compatible and to allow easy

communications with those languages. That would have let organizations maintain and enhance their substantial software investments. Instead, Sun seems intent on obsoleting virtually the entire world's code base, referring to it as "legacy" software.

Worse, there's no moderating force. Last year, Sun persuaded a majority of the American National Standards Institute (ANSI) language committee to approve Java as a standard language but to let Sun continue as sole proprietor and designer. Previously, any language that was approved as a standard was then maintained and modified only by the majority of the ANSI committee for that language. In the case of Java, Sun retains proprietary possession of the language, and the ANSI committee becomes a rubber stamp for Sun.

In Java development projects, I have found that overabstraction and overobjectification seem to complicate very simple problems. The whole Java/Common Object Request Broker Architecture mind-set erects barriers to thinking about simple problems in simple terms.

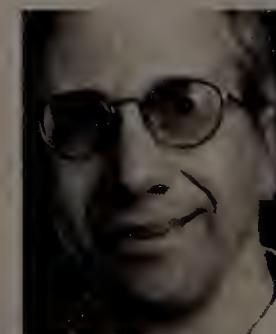
As a direct consequence of that mind-set, and of the resultant lack of attention to the data being manipulated, designs are overly complex, and performance is poor. Debugging errant Java processes and threads is a nightmare, a throwback to spraying batch Fortran programs with Print statements. Because of security and performance considerations, Java applets on Web sites have become relatively rare, and Java isn't even allowed through some corporate firewalls.

Despite packaging Java as a neutral language and platform, Sun is really pursuing a common industry tactic for garnering market share. All the big players in the computer market — Microsoft, IBM, the former Digital, Hewlett-Packard, Sun and so on — have done it in the past, with software or hardware that's not-quite-compatible with what is standard. The idea is that you "lock in" customers by portraying the incompatibilities as gigantic advantages, locking out the competition.

The Java language is a masterful attempt to move programmers and organizations into the Sun orbit, into a proprietary software architecture and platform that is "open" in name only, from the "Windows monopoly" to the "Java/Java virtual machine monopoly," which comprises software that, coincidentally runs best on Sun hardware using a Sun operating system.

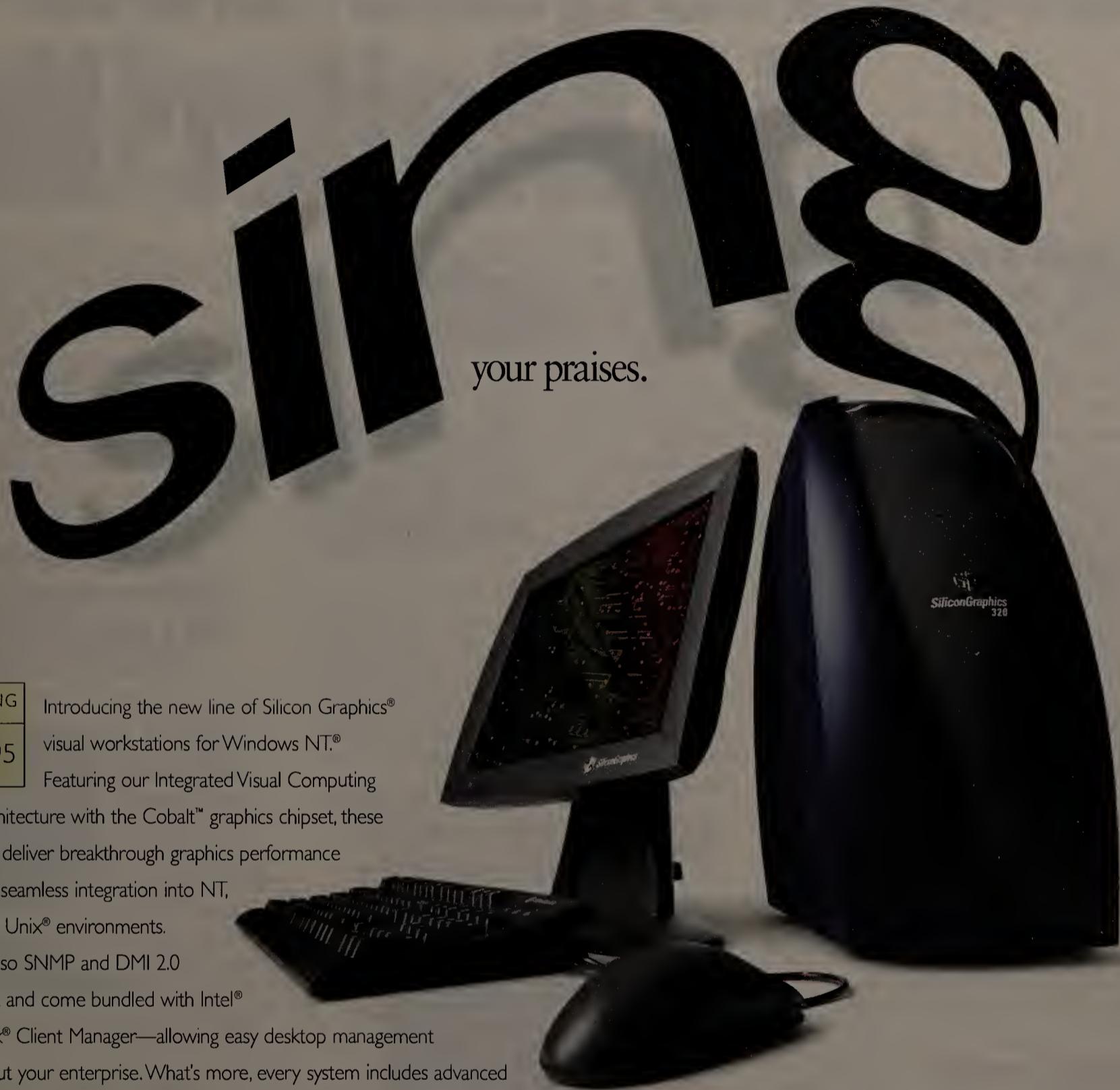
I believe that for Sun, wide acceptance of Java and the Java virtual machine is a life-or-death issue because the company's hardware and operating system are being eclipsed by faster Intel and AMD chips and by the Linux operating system. So Sun's motives are understandable. But the method is underhanded.

I urge organizations to consider whether they want their software infrastructure to depend on an essentially proprietary software architecture owned and licensed by a single company, with all the other problems I've mentioned. I personally would think twice before making such a decision. You should, too. ▶



JON CAMPBELL is principal software engineer at Unifi Communications in Lowell, Mass. Contact him at jcampbel@unifi.com.

Graphics will scream.
Networks will hum. Users will just



STARTING
@
\$3,395

Introducing the new line of Silicon Graphics®

visual workstations for Windows NT.®

Featuring our Integrated Visual Computing

(IVC) architecture with the Cobalt™ graphics chipset, these machines deliver breakthrough graphics performance and offer seamless integration into NT, Mac® and Unix® environments.

They're also SNMP and DMI 2.0 compliant and come bundled with Intel® LANDesk® Client Manager—allowing easy desktop management throughout your enterprise. What's more, every system includes advanced integrated features such as 10/100 Ethernet, IEEE-1394, USB and professional video I/O, enabling hassle-free installation and support. And the price? Less than you would expect. The Silicon Graphics 320™ workstation starts at just \$3,395.



pentium® II

Or choose the Silicon Graphics 540™ workstation.** Starting at only \$5,995 and supporting up to four Intel® Pentium® II Xeon™ processors, it's the most scalable Windows NT workstation around. Whichever you choose, it'll be music to your ears.

Silicon Graphics 320 Visual Workstation

- Silicon Graphics Integrated Visual Computing architecture with Cobalt graphics chipset
- Supports up to two Intel® Pentium® II processors (up to 450MHz)
- Silicon Graphics Interoperability Toolkit† bundled free with every system
- Ultra ATA or optional Ultra2 SCSI drives up to 28GB total capacity
- Microsoft® Windows NT® Workstation 4.0
- Add the SuperWide™ 17.3" Silicon Graphics 1600SW™ digital flat panel monitor (shown) for only \$2,495



SiliconGraphics

To get information, find a local reseller or to order, call **1 888 SGI-3548** or visit us at www.sgi.com/go/visual

*Requires additional software under Windows NT Workstation 4.0. **For information on the 1999 availability of the Silicon Graphics 540 workstation, please call 1 888 SGI-3548. Bundled free with every system: Windows NT Workstation 4.0 with SP 1, Hummingbird Macario Solo and Telnet Daemon, Equilibrium Debaterizer Pro 4.5LE (Light Edition), Media4 Production MacDrive 98, McAfee Virus Scan and Web Scan and Intel LANDesk Client Manager (LDCM v3.3). Prices quoted are for U.S. only.

©1999 Silicon Graphics, Inc. All rights reserved. Silicon Graphics is a registered trademark, and the Silicon Graphics logo, Silicon Graphics 320, Silicon Graphics 540, Cobalt, SuperWide and Silicon Graphics 1600SW are trademarks, of Silicon Graphics, Inc. Intel, the Intel Inside logo, Pentium and Intel Xeon are registered trademarks, and Pentium II Xeon is a trademark, of Intel Corporation. Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. All other trademarks are property of their respective owners.

CA'S Acquisition Of No Matter How

For Clients Of Both Companies, It's The Best Of Both Worlds.

Big but fast. Small but global. Innovative but safe.

This merger offers clients all kinds of benefits that used to be mutually exclusive. Until now, clients always had to choose between large, safe, established software partners and small, leading-edge, up-and-coming developers. Each had its advantages and disadvantages. Everything was a compromise. But by combining the experience and worldwide resources of a five billion-dollar software company with the talent, specialization, and proven expertise of an up-and-coming applications developer, this merger will create something truly unique.

The best of both worlds.

CMSI Offers Proven Development Methodologies And Extensive Experience With Strategic Re-Engineering.

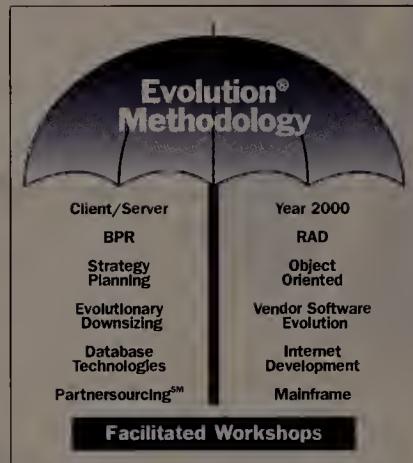
CMSI specializes in software application development, systems integration, database technology services, client/server solutions, systems outsourcing, strategic information technology consulting, and systems support/maintenance.

Focusing on the information processing needs of Fortune 1000 companies and state and local governments, CMSI is an expert at the creation, manipulation, and integration of software applications, as well as IT outsourcing, facilities management, and maintenance of legacy and client/server computer systems.

With a 16-year track record of success, CMSI

has attracted a prestigious list of clients, including Coca-Cola, CSX Corporation, Kemper Financial Services, Lockheed Aeronautical Systems Company, Merrill Lynch, and Wachovia Bank.

The key to the success of CMSI is their staff of highly-skilled, experienced professionals who have extensive, wide-ranging expertise in Internet development, e-commerce, business process re-engineering, strategy planning, evolutionary downsizing, rapid application development (RAD), object oriented databases, vendor software evaluation, and other key technology areas.



SOC/WAN Deployment Strategy
Company-wide resources on call
to provide solutions



In response to clients' needs, CMSI developed a national network of innovative Systems Outsourcing Centers. These "SOCs" enable the company to maintain a repository of re-usable software applications, code strings, and components that ultimately reduce the time and effort needed during the initial development phase of a project. Each SOC is networked to provide CMSI with the ability to staff projects from any SOC or branch location for concurrent development. They also offer on-site consultant and

customer training centers that provide complete staging capability to train users of a newly-completed system prior to deployment at the customer site.

CMSI has also created a proprietary Evolution Methodology, which is an integrated set of stages, tasks, work products, techniques, tools, and project management guidelines that provide a standard approach for planning, development, and maintenance. This helps CMSI deliver more productive, cost-efficient solutions in less time than the competition.

CA Is The World's Leading Business Software Company With A Client List That Includes 99% Of The Fortune 500.

It's very difficult to find a company that doesn't use CA software.

With tens of thousands of clients in more than 100 countries around the world, Computer Associates is the world leader in mission-critical business computing. A staff of 13,000 employees provides software, support, and integration services for the world's leading companies, governments, and non-profit institutions.

With a product line of more than 500 different solutions, CA makes more kinds of software for more kinds of computers than anyone else in the world. CA's best-known product, Unicenter TNG®, is a billion-dollar product that has become the industry standard for enterprise management.

CMSI Will Join CA's Fast-Growing Global Professional Services™ Division.

Doubling in size in just the past year, CA's Global Professional Services Division is growing meteorically both through organic growth and through



CMSI Is Great News You Look At It.

strategic acquisitions like this one.

CMSI will become part of CA Global Professional Services (GPS) in accordance with GPS' growth strategy of implementing leading-edge business solutions.

GPS offers a broad spectrum of IT services in dozens of disciplines, including infrastructure management, application development and integration, Y2K compliance services, asset management, deskside support, and end-user productivity.

Services range from consulting, to implementation, to comprehensive outsourcing and facilities management.

CA And CMSI Product & Service Offerings Complement Each Other With Virtually No Overlap.

CMSI offers services CA doesn't offer. CA offers software solutions CMSI doesn't have. By combining the two product and service offerings, the result is a more comprehensive, wide-ranging offering of both products and services for clients to choose from. Because there is virtually no overlap between the two companies, there is tremendous synergy and growth potential between the products of CA and the services of CMSI.

Innovative, Leading-Edge Applications Backed Up With The Industry's Best Service And Support.

CMSI builds some of the most innovative applications and client-server solutions in the industry. Now these leading-edge solutions will come fully-backed with all the resources of CA's award-winning service and support. Around the clock and around the world, CA provides mission-critical support that is unmatched. This additional benefit can only enhance and strengthen all of CMSI's applications.



Global Professional Services™

An Unprecedented Opportunity For CA's Jasmine® And Ingres® Technology.

CA has developed some of the most advanced database and object technology software in the world. Now with CMSI's expertise and experience, this software can be exploited to its fullest. Clients will be able to choose from one source

not only the advanced software that they need to develop the applications of tomorrow, but the expert developers and consulting partner that they need to build these applications.

CA And CMSI Are The Perfect Partners To Deliver Comprehensive e-Commerce Solutions.

CA offers a broad range of software that can make e-commerce viable. With the help of CMSI, CA will

be able to leverage this software into comprehensive solutions for clients.

While some vendors offer pieces of the e-commerce puzzle,

CA and CMSI will be the only partners that offer everything you need to make e-commerce a reality.



An Ideal Fit In Terms Of Technical Strengths, Business Vision, And Corporate Culture.

"Our partnership with CMSI extends our continuing strategy of building GPS through highly-focused acquisitions that complement CA's core competencies and that address the most critical requirements of today's global enterprise," says CA President and COO Sanjay Kumar. "CMSI's proven development methodologies and extensive experience with strategic re-engineering make

them an ideal addition to GPS's already formidable technology and business resources. They will provide a particularly powerful vehicle for greater penetration of CA's Jasmine and Ingres technologies into the upper echelons of the corporate application development market space."

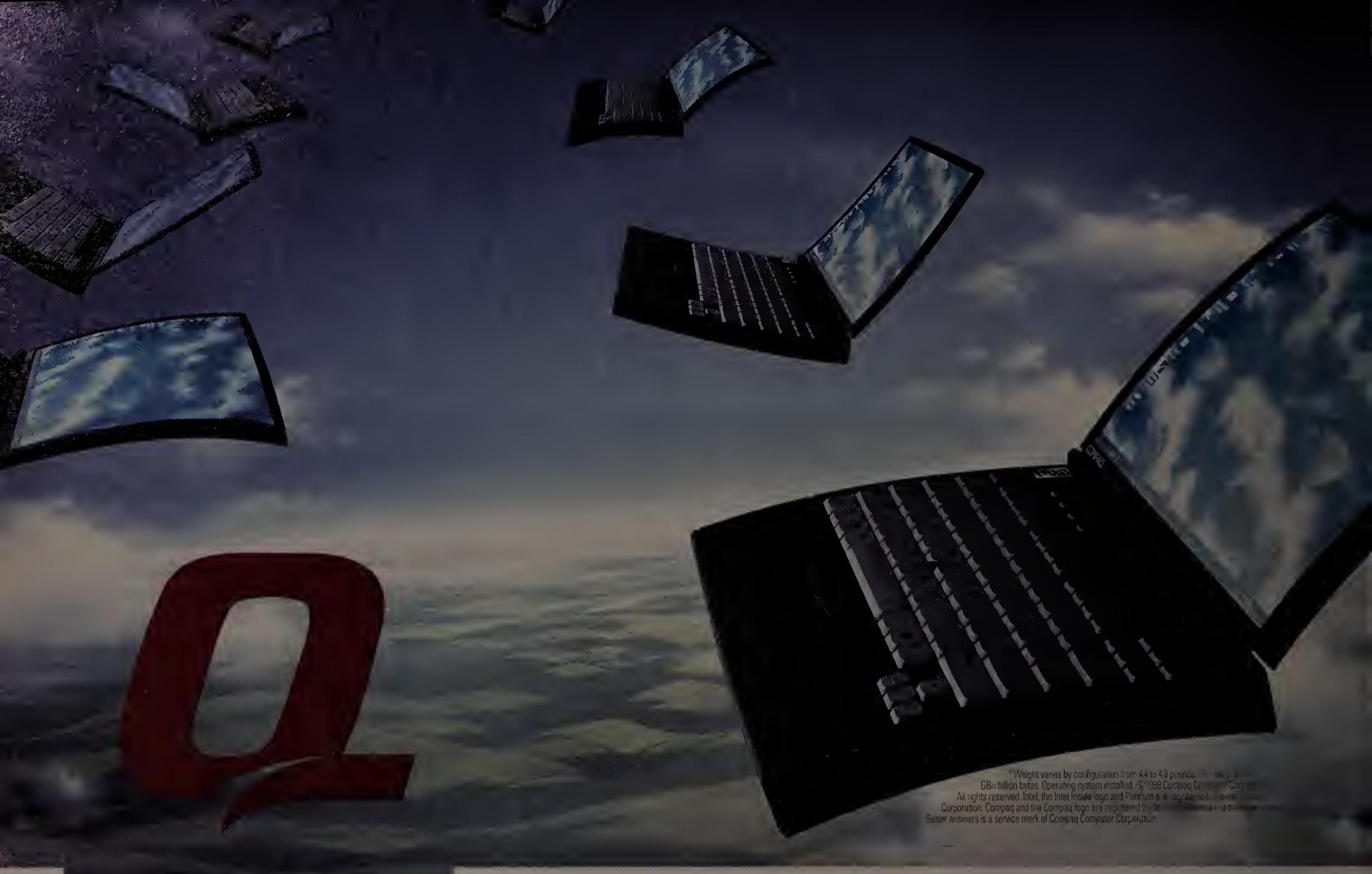
"This is a very exciting time to be joining the CA family," says CMSI Chairman and CEO Jerry W. Davis, "Our two companies have an ideal fit in terms of technical strengths, business vision, and corporate culture. We're especially enthusiastic about the contributions this partnership will allow us to make globally in high-growth areas such as Internet commerce applications and multimedia content delivery."

To Find Out More Call
1-800-432-2867
Ext. 2236, Or Visit
www.cai.com/cmsi-info

**COMPUTER®
ASSOCIATES**
Software superior by design.

CSI
M

Computer Management Sciences, Inc.



All notebooks
travel.
Is there one
that soars?

Unlike other so-called "highly mobile" notebooks, the Compaq Armada 3500 doesn't swap performance for portability. Designed for the savvy traveler, its topflight specs include a Mobile Pentium® II processor soaring to 366 MHz—in a sleek package as light as 4.4 pounds.* With built-in 6.4 GB[†] hard drive, full-size keyboard, extended-life battery option and extra-durable magnesium alloy display casing, the Armada 3500 has everything you need for maximum flexibility—and unlimited mileage. To learn more, call 1-800-AT-COMPAQ. Or visit www.compaq.com/soar.



COMPAQ Better answers.[™]

*Weight varies by configuration from 4.4 to 4.8 pounds. [†]6.4 GB= billion bytes. Operating system installed. ©1999 Compaq Computer Corporation. All rights reserved. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Compaq and the Compaq logo are registered trademarks of Compaq Computer Corporation. Better answers is a service mark of Compaq Computer Corporation.

BUSINESS

HDI SHRINKS

Help Desk Institute members are fleeing to competing upstart organizations, complaining about HDI's service. The upstarts have high expectations, but the HDI says it has big plans, too. ▶ 40

ERP CHANGES

ERP installations face lots of hurdles, not the least of which is to help business-side project members understand the need to document changes made to software to match business needs. ▶ 41

COUPONS ONLINE

Two of the top 15 surf sites offer "coupons" that can be printed and used at brick-and-mortar stores. Customers such as Chuck E. Cheese's parent company find it an efficient way to get promotions into the hands of consumers. ▶ 44

FOOD FIRMS CROSS FINGERS

Packaged-food makers say they're almost ready for the ultimate deadline but aren't sure about their suppliers — especially those overseas. Many, such as General Mills, send agents to check the links in their supply chains. ▶ 45

KEEPING NEW HIRES HAPPY

Happy IT staffers say time off may be the best perk their employers can offer. But electronic-

commerce, year 2000 and other projects demand more time, not less. Handling the conflict well can keep staffers and projects on track. ▶ 48

SHAPE UP OR SHIP OUT

More business relationships will end this year than at any other time in modern history — and conflicts over year 2000 issues will be the cause of most of the breakups, Ed Yourdon predicts. But if lots of big companies switch vendors simultaneously, the changeover chaos could be worse than year 2000. ▶ 49

TEACHING THE ROPES

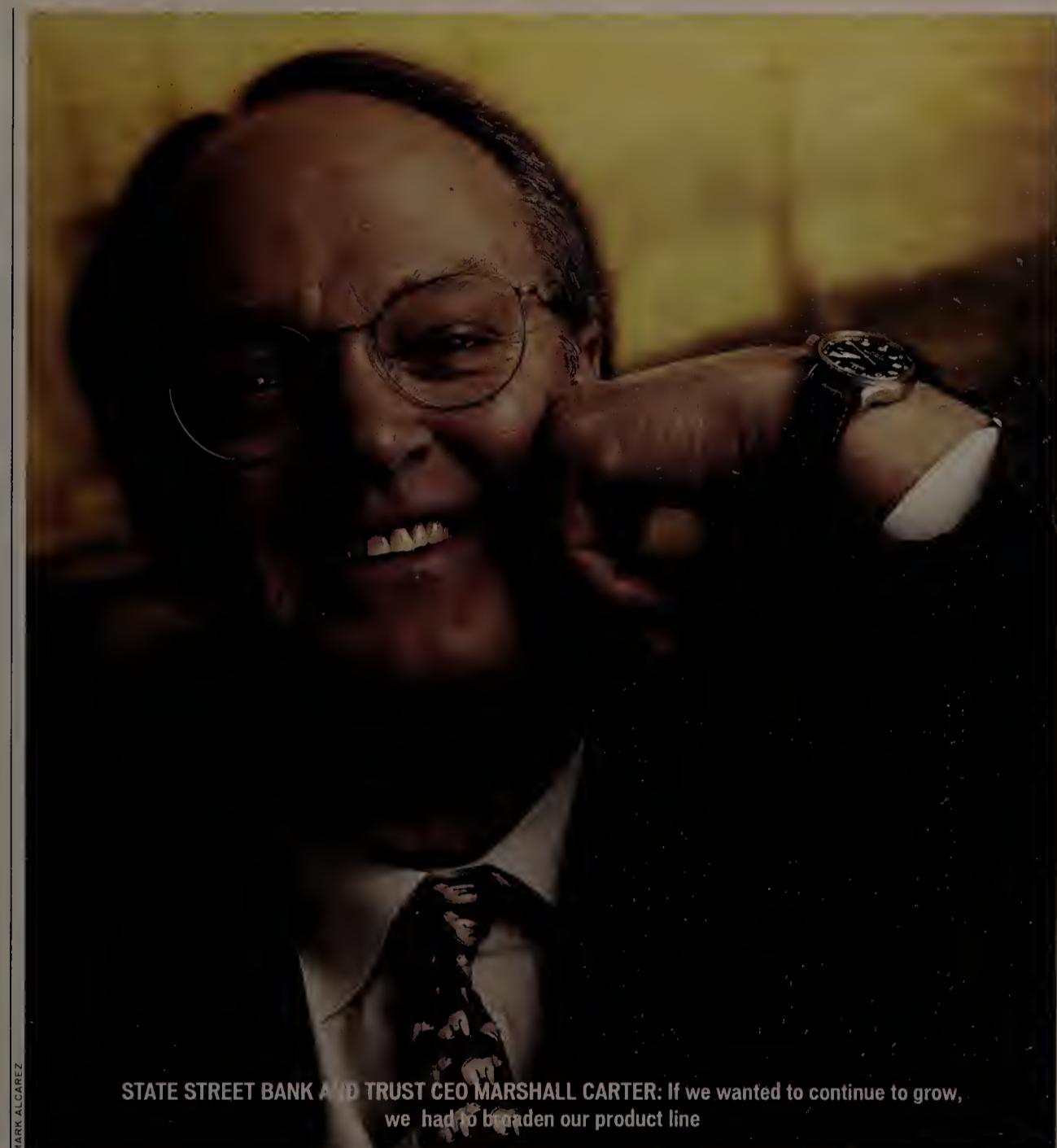
Orientation should involve more than a handshake and a quick "hello." Getting IT people off to a good start makes them more effective and keeps them around longer. Have a desk ready, a buddy to show them around and give them a reason to look forward to working for you. ▶ 48

TIPS ON UPPING YOUR SALARY

Here are 10 tips on how to get a raise now. Basically, do something right, do something valuable and make sure the boss knows about it. ▶ 56

MORE

Advice	58
Careers	46
E-commerce	44
Opinion: Ed Yourdon	49
Year 2000.....	45



STATE STREET BANK AND TRUST CEO MARSHALL CARTER: If we wanted to continue to grow, we had to broaden our product line

CHARTING A NEW COURSE

CEO MARSHALL CARTER has reinvented Boston-based State Street Bank and Trust Co. He started with a bank that used information technology and made it an IT company that provides state-of-the-art tools and services for asset custody and asset management.

52

Members Abandon Help Desk Institute

BY JULIA KING

The Help Desk Institute (HDI) is supposed to provide its dues-paying members with

newsletters, updated information about industry best practices and ongoing support for local chapters.

Yet Eugene Ball, president of the HDI chapter in Research Triangle Park, N.C., can't recall the last time he received any of

that from the San Francisco-based professional association.

Nor can Margo Fullilove, president of the 700-member Chicago chapter. "Over the years, the support and interaction we have gotten from HDI

has eroded," Fullilove said. "We feel like we're being used as a mailing list, and we're not getting a good deal of support back." The Chicago chapter is considering joining one of two new groups that are forming to represent help desk workers.

Still other HDI chapters — including one in Vancouver, British Columbia — already have severed ties with HDI.

What Vancouver would like from any new association is "an avenue for networking and an ethical company with current information, industry standards and benchmarking," said Karen Yuen, president of the now-independent chapter that calls itself Help Desk B.C.

One of the new groups, Atlanta-based Help Desk 2000, which offers education and certification programs, aims to sign 2,000 new members by next year, said Jennifer Cress, executive director.

Among other things, members will participate in monthly teleconference discussions and have access to a members-only Web site. Help Desk 2000 also hired Pete McGarahan, whom HDI fired last October as executive director apparently because of the group's insufficient finances. McGarahan now is traveling the country to recruit members for the new organization — as is Ivy Meadors, founder of the new, nonprofit Help Desk Professionals Association (HDPA).

Meadors described HDPA as "an E-commerce-based virtual business." Member benefits will include access to an online database as well as tutorials.

"People in the industry are already submitting content for free," Meadors said. "We've also been receiving between 300 and 400 E-mails a day and have had 175 volunteers the first week."

HDI also has big plans, according to Bill Rose, managing director of the Ziff-Davis Association, which has owned HDI since 1992. Although he declined to be specific, Rose said the group plans to announce "several innovative membership deliverables" at next month's Support Services Conference & Expo, a Ziff-Davis event in Washington. ▀

THEM:
We know
what's best.

DELOITTE
CONSULTING:
We know what works.

Confidence is one thing.
Arrogance is something else altogether.

At Deloitte Consulting, we never presume to have all the answers.
Because we've learned over the years that certain insights
can only come from inside our client's organization.

Which is why we work collaboratively with you.
And treat everyone, from your corner offices to the cubicles,
with respect. It's all part of a working style that has proven to secure
employee buy-in to changes at hand. Which ensures the complete
transfer of the additional knowledge and skills your people
will use to deliver the promised returns of any
new strategies and technologies.

For results you can count on today.
And build on tomorrow.

A very different approach. For very different results.

**Deloitte & Touche Consulting
Group**

www.dtcg.com

© 1999 Deloitte & Touche Consulting Group LLC

MOREONLINE

For links to publications and other resources related to help desks, visit our Web site.
www.computerworld.com/more

TRACKING CHANGES A MUST IN ERP PROJECTS

Business users sometimes fail to realize importance

BY CRAIG STEDMAN

FOR ERP project managers, instilling a sense of discipline among workers who will use the applications can be a make-or-break necessity. And controlling software modifications is a prime example.

Setting guidelines for employees who are involved in tailoring packaged software to fit a company's unique business needs is only the beginning, said several managers involved in rollouts of enterprise resource planning (ERP) systems. The bigger challenge is persuading workers facing tight project schedules not to cut corners in documenting the changes they make.

That process can be complicated by the fact that a disproportionate number of business users make up most ERP project teams. Unlike those with more information technology experience, these users may not realize the importance of keeping track of software modifications, the managers said.

To many workers, change manage-

ment "looks bureaucratic," said Gary Peteritas, SAP project manager at Hoechst Marion Roussel Inc. "You can dictate it, mandate it and legislate it, but that's just like the rules of the road. Just because there are speed limits doesn't mean people will pay attention to them."

Don't Get Lost

Convincing ERP team members of the need to document changes slavishly is a must, "or you never really know what you've installed," Peteritas said. That could cause problems with things such as upgrading the software and tying it to other applications (see chart).

Hoechst Marion Roussel, a Kansas City, Mo.-based pharmaceutical maker, went live with SAP AG's R/3 applications last month. During the rollout, Peteritas said, he and other managers tried to "touch each person individually to make [the importance of change management] stick." That included showing workers examples of how government regulations require tight doc-

umentation of the software used in the company's manufacturing operations.

Algoma Steel Inc., a steelmaker in Sault Ste. Marie, Ontario, faced similar change-management challenges after it began installing PeopleSoft Inc.'s applications [CW, Feb. 1].

Laying out rules isn't hard, said Gary Disano, Algoma's project manager. The big job, he said, is "making sure people grasp the concept of why you're setting them up and what the implications of not following them are."

To help with that, even the business users involved in the project were sent to PeopleSoft's technical training classes, Disano said.

Algoma also borrowed the software installation methodology of a consulting firm that was hired to work on the project.

For IT workers assigned to a People-

Soft rollout at The MacManus Group, the importance of documenting software changes "is part of their indoctrination to the project team," said Jim Dileo, senior vice president of worldwide IT at the New York-based advertising and public relations firm.

To further encourage developers to "take more care on the front end," Dileo said he also requires them to help support the software after it's installed. ▶

Control Yourself

Closely managing and documenting changes to ERP software can help users:

AVOID problems when the applications are upgraded

GUARD against common business processes being compromised

KEEP ERP systems synchronized with other applications

STAY eligible for vendor-supplied technical support

PROVE compliance with government regulatory requirements

Analysts: Plan for Handhelds

Single platform, product 'shortlist' top advice list

BY MATT HAMBLEN

Analysts have plenty of tips to help IT staffs manage handheld computers and smart phones, as usage of such devices is expected to quadruple by 2002 and infiltrate corporations.

Many information technology managers admit they aren't prepared to support handhelds [CW, Feb. 8]. So analysts are at the ready to help them decide some basic issues, such as whether they should standardize on a single platform or budget funds to synchronize setup. Experts' recommendations vary.

In a research note, analyst Ken Dulaney at Gartner Group Inc. in Stamford, Conn., urged firms to create a product "shortlist" for users to buy from. But IT "should never expect that a single personal digital assistant model will ever be adopted," he warned.

Analyst Gerry Purdy at Mobile Insights Inc. in Mountain View, Calif.,

urged firms to settle on one platform by the year 2000. He said he believes that Microsoft Corp.'s Windows CE will be the best way to access company networks.

Forrester Group Inc. in Cambridge, Mass., advises IT staffers to tell business departments to buy devices that will run custom applications, since that's one area where they probably can gain a competitive advantage.

As for support, a report by Forrester analyst Matthew Nordan suggests moving synchronization functions from users' desktops to back-end servers to provide more security and minimize version control problems. Such technology should be available by midyear from Puma Technology Inc. in San Jose, Calif., Forrester said.

Setting up synchronization will cost about \$50 per user, the report said, which can be cost-justified by pointing out that a tech support visit for one device without a sync service program would cost about the same.

Gartner urges standardizing on a synchronization product to support a variety of devices. ▶

First Union Bank increased profits by \$10 million – in a single month.

**Get the whole story at
www.sas.com/cw/profits**



Illinois Prisons Upgrade Database to Tighten Reins on Cons

BY STEWART DECK

Illinois prisons are full of inmates. Their files are packed with information and photos used by wardens to place new arrivals safely and by investigators to solve prisoner crimes more speedily.

The information is continually fed into a database that is growing so quickly it will need a database system upgrade this spring.

"Some people say the inmates' favorite pastime is to sue us, so we need all these details and need to make sure we cover every occurrence," said Scott Lovdahl, a data administrator at the Department of Corrections in Springfield, Ill.

The system, with a centralized Sybase Inc. database and 26 smaller satellite Sybase databases, holds detailed information on the state's 40,000 inmates that can help staff decide which cell would be safe for a particular prisoner, for example. Each record includes the inmate's criminal background, religion, any gang affiliations, job assignments and history of cell moves.

Fewer confrontations mean less stress on the guards and inmates, fewer worker compensation claims, fewer injuries and less dangerous facilities.

Easier IDs

"This system has sometimes cut days off of our investigations," said Lt. Tom Carroway, an internal security investigator at the Menard Correctional Facility in Menard, Ill. "This lets us quickly look up an inmate's past history and immediately get up-to-date photos of them we can print out and use for identification purposes."

Bill Taylor, a development specialist at the American Correctional Association, a professional association in Lanham, Md., said several states use some form of inmate tracking systems like that in Illinois because "they can be an excellent tool for managing prison populations and decreasing inmate-on-inmate violence."

"The nature of the business is maintaining control of people and events, and that means knowing the relevant facts in advance if you can, or immediately when a situation arises," said David Lanterman, manager of information services at

the Department of Corrections.

On the technical side, the stress of updating so much data is eased by the fact that

each prison runs its own smaller subdatabase. The main database replicates 26 subsets of the data — one for each of the

state's correctional facilities — "which speeds everything up immeasurably," Lovdahl said.

Still, the department will

add Sybase's Adaptive Server Enterprise database and Sybase Replication Server to the system this spring to better handle the crushing load of digital photos — currently 230,000 and growing. ▀

12 new branch offices.

Three business-critical applications to deploy.

35 new employees to train.



BUSINESS

Hartford Hospital Seeks Competitive Edge With \$1.7M Net

BY BARB COLE-GOMOLSKI

At a time when most hospitals are throwing the bulk of their information technology re-

sources at year 2000 projects, Hartford Hospital is investing big in a high-speed network.

The 800-bed Connecticut fa-

cility is betting that the applications it will run on the \$1.7 million Asynchronous Transfer Mode network will make it

stand out in a competitive market and let it share resources with nearby affiliates.

The new 3Com Corp. net-

No
problem.

With Citrix server-based computing software, it's easier than ever to manage branch offices, deploy new applications and train users—all by yourself.

It's true! Citrix® MetaFrame™ and WinFrame® are the preferred application deployment solutions for thousands of companies wanting to extend access to business-critical Windows®-based applications while reducing the total cost of application ownership.



Fast deployment capabilities get more users the applications they need every day.

With Citrix, all vital applications can be deployed in minutes from one location. No more time-consuming installations on your various client devices. Plus, you no longer have to deal with version control issues, multiple system configurations or data replication. This way, you're free to provide top-quality deployment, management and support for your entire organization.

Single-point control means you can do your job easier—without leaving your desk.

MetaFrame and WinFrame give administrators powerful management and scalability tools they can use right from their desktop. Without leaving their chairs, they can support thousands of users, monitor application access, troubleshoot problems, train end users and install software updates.

See what 77% of Fortune 100 companies already know—Citrix works!

Discover for yourself how thousands of leading companies are solving the problems of enterprise-wide application deployment and increasing productivity with Citrix MetaFrame and WinFrame.

To learn how Citrix can help you, call 888-564-7630 or visit www.citrix.com/drive1 for a FREE Test Drive CD-ROM.

CITRIX®

© Copyright 1990-1998, Citrix Systems, Inc. All rights reserved. Citrix and Winframe are registered trademarks, and MetaFrame is a trademark of Citrix Systems, Inc. All other products and services are trademarks or service marks of their respective companies. Technical specifications and availability are subject to change without prior notice. Made in the U.S.A.

work, about 100 times faster than the old Ethernet network, will lead to speedier diagnoses, said Alan Hofmann, director of network services. A medical records imaging system from Sungard Healthcare in Rockville, Md., will automatically distribute patients' medical histories to physicians, nurses and administrators. A picture archival application will let radiologists quickly share X rays. The hospital also plans to install videoconferencing to let physicians at remote offices and affiliated hospitals discuss treatment strategies.

The hospital hasn't selected vendors for the archiving and videoconferencing.

Another initiative involves putting patient monitoring information on the network, so doctors can view a patient's vital signs remotely with a delay of about 30 seconds.

Because the network extends to two affiliated hospitals and more than 30 remote clinics, the health care system will be better able to share its doctors and facilities. "As we expand our services across the state, we need to ensure that critical data moves rapidly among medical teams and across sites," Hofmann said.

Many hospitals have outgrown their networks as they move toward use of electronic patient records and digital medical devices. In a survey last year of 1,600 members of the Chicago-based Healthcare Information and Management Systems Society, 34% of respondents said they were using telemedicine applications similar to those at Hartford.

Hartford Hospital appears to be slightly ahead of at least one of its main competitors, Yale-New Haven Medical Center.

Ken Best, a spokesman for Yale-New Haven, said his hospital has digital imaging throughout its main facility. And it wants to link the diagnostic systems at each of its facilities, which include Yale Medical School and a children's hospital, to make sharing information easier.

Many hospitals have tight IT budgets, and investment in new projects has slowed because of year 2000 work. But some begin projects to help them reach outside their coverage areas, said Larry Powala, an analyst at Dorenfest & Associates, a health care IT consultancy in Chicago. ▶

COUPON CLIPPING HITS THE WEB — BIG-TIME

Consumers register in droves to receive real-world discounts from national stores

BY SHARON MACHLIS

ALONG WITH toys books and music, one of the most popular shopping categories on the Internet in December was ... coupons.

Coolsavings.com and Valupage.com cracked Media Metrix Inc.'s top 15 shopping sites for December, garnering more than 1.8 million unique visitors. Each site offers discounts on goods that are bought in the brick-and-mortar world.

"It seems to be an extremely efficient way to reach people," said Jon Rice, vice president of marketing at CEC Entertainment Inc. in Irving, Texas, which operates the Chuck E. Cheese restaurant chain. "When we started out, it was purely an experiment. We've hung in there because it's continued to grow."

Rice didn't discuss specific

numbers but said the cost per coupon redeemed from Coolsavings.com is "very attractive for us" compared with coupons by mail or newspaper inserts. Other offers on a recent visit included 20% off one item at Toys R Us and \$1,000 off a Chrysler Sebring.

Coolsavings Inc. now has more than 1.3 million registered households, and revenue has grown twelvefold from a year ago, said Chairman and CEO Steven Golden. The privately held company, which doesn't release financial figures, has signed up about 60 national accounts, including H&R Block Inc., Kmart Inc. and Kids R Us. "We look to break even by the end of this year," he said.

H&R Block had double-digit (that is, more than 10) redemptions of downloaded coupons last year, according to Paul Marran, creative director for Brand Dialog, a division of Young & Rubicam in Chicago



COOLSAVINGS CEO STEVEN GOLDEN, pictured here with the company logo, says revenue has grown twelvefold in a year

that oversees the tax-preparing firm's online advertising campaign. Traditional paper coupons might have a 2% redemption rate, he said. And a contest on the site has already

tripled the number of entries compared with last year, well short of prime tax season.

Meanwhile, Supermarkets Online Inc., which runs two coupon sites including Valu-

page, said its traffic is soaring. The company handled 645,000 different visitors during one recent week. The Valupage site lets consumers print out a bar-coded shopping list good for discounts at 9,000 participating supermarkets.

Ken Cassar, an analyst at Jupiter Communications Inc. of New York, said he doesn't believe coupon sites should be categorized as "Internet shopping," because they aren't conducting transactions. However, no matter where they're classified, Cassar said, "It's a burgeoning category."

There are others besides the category leaders. A major player in direct-mail coupons, Val-Pak Direct Marketing Systems Inc. in Largo Fla., is on the Internet (www.valpak.com); another site, FreeShop International Inc. (www.freeshop.com) in St. Cloud, Minn., posts free offers from publishers and manufacturers. Others are in the works.

Coupon delivery costs are certainly cheaper over the Internet than by mail or newspaper, Cassar said. But in the current hotly competitive online environment, marketing and advertising costs to acquire new customers can be substantial.

In the short run, he noted, "oftentimes [Web] promotional costs end up substituting for physical-world costs." ▀

SNAPSHOT

World Wide Wait

The average time, in seconds, to download a home page from one of 40 business-related Web sites during business hours for the week of Feb. 1:

Top 5 Best-Performing Web Sites

Microsoft Corp. 2.82

The Wall Street Journal 3.25

Lycos Inc. 4.50

Hewlett-Packard Co. 4.56

Merrill Lynch & Co. 4.71

Best Areas to Web Surf

Pittsburgh 3.83

Detroit 4.49

Miami 4.52

Worst Areas to Web Surf

Norfolk, Va. 23.64

Columbus, Ohio 14.74

Tampa, Fla. 13.68

Government To Compile E-Commerce Stats

FTC emphasizes consumer interests

BY JAMES NICCOLAI

The federal government will begin separately tracking and publishing statistics about online shopping instead of incorporating them in catalog sales, the Department of Commerce has announced.

Commerce Secretary William Daley and Federal Trade Commission Chairman Robert Pitofsky said the boom in online business makes it more important than ever to protect the interests of Internet shoppers.

Daley estimated that consumers spent \$9 billion online last year, a figure he predicted

would increase to \$30 billion next year.

The proportion of retailers selling goods on the Internet

tripled in a single year, from 12% in 1997 to 39% last year, according to Commerce Department estimates.

New figures that break out Internet sales as a separate entity will be available by the middle of next year for 1998 and 1999, Daley said. ▀

Niccolai writes for the IDG News Service in San Francisco.

IBM Teams With Music Makers for Net Test

Will allow albums to be downloaded

BY TOM DIEDERICH

Some online music lovers in San Diego will soon be able to pay for and download full-length albums over the Internet and transfer them to CD or tape.

A six-month pilot program — a joint initiative of IBM

and five top recording firms — will start this spring. The pilot will involve 1,000 cable TV subscribers who access the Internet via cable modems, the companies said in a statement.

IBM — along with BMG Entertainment, EMI Recorded Music, Sony Music Entertainment, Universal Music Group and Warner Music Group — said the highly secure system would give consumers fast and

easy access to music while protecting the legal rights of those who produce albums.

According to the companies, downloading a 60-minute album will take less than 10 minutes via cable modem.

The pilot program was set up so that IBM and the music companies could gauge public reaction to such a system and to test a wide range of technical issues, such as compression and network delivery. ▀

FOOD FIRMS' FINGERS CROSSED

Supplier readiness is the big unknown, but no shortages foreseen

BY STACY COLLETT

PACKAGED-FOOD manufacturers are well on their way to year 2000 compliance, with 95% of Grocery Manufacturers of America members saying they will beat the Jan. 1 deadline. But industry officials concede there are forces beyond their control that threaten a smooth transition to the new millennium.

For example, industry heavyweights General Mills Inc., Kraft Foods Inc., Nestle SA and Cargill Inc. have manufacturing plants worldwide and rely on developing nations for core ingredients like sugar and cocoa. A failed system in any region could create a domino effect.

"The food industry is part of a very complex supply chain;

JUST THE FACTS

Y2K Food Facts by the Numbers:

\$1.8B	Total being spent by the packaged-food industry on fixing the year 2000 problem
\$27M	Average being spent on Y2K by most food processors/packagers
\$100M	Average being spent by larger, multi-national food producers

Base: Survey of 87 members of the Grocery Manufacturers of America

raw products, distributors, wholesalers, supermarkets," said Lisa McCue, a spokeswoman for the 130-member Grocery Manufacturers of America. "There is concern that other links in the supply chain are not ready."

Without industry-wide regulations, food companies must rely on suppliers' assurances that they will be year 2000-compliant. And government agencies outside North America generally are less willing to provide information about their readiness.

Industry watchers said equipment on the plant floor remains the food industry's Achilles' heel. While orders can be taken by phone or fax and shipping arrangements

INDUSTRY PROFILE

handled manually in the event of a year 2000 glitch, there's no way to work around equipment failures on the food-processing line.

To avert disaster, Minneapolis-based General Mills hired Raytheon Corp. to take a fine-toothed comb through every one of the 40 locations where its food products are made. Raytheon is analyzing the year 2000 readiness of its key suppliers. Another 200 suppliers have been polled through interviews and surveys.

The surveys offer little concrete evidence of year 2000 compliance, according to analysts, but companies hope the surveys will buffer them from liability down the road.

Kraft also is taking steps to "reasonably ascertain" the readiness of its critical suppliers through questionnaires and

the like, according to a Securities and Exchange Commission filing. It plans to spend \$550 million on its year 2000 effort and another \$150 million to replace equipment.

Food manufacturers already have spent the majority of their predicted \$1.8 billion on year 2000 work. Most will spend 12.8% of this year's information technology budgets on achieving year 2000 compliance — about half of last year's total of 24.8% — as they wrap up projects, according to an upcoming report by market research firm Dataquest.

Industry officials foresee no food shortages in 2000 and assure consumers there's no need to hoard their favorite cereal. Food producers have no plans to stockpile their products but will respond to any increase in market demand beginning in July or August. ▀

Official: Russia's Call for Help Is Actually a Good Sign

Shows that country takes Y2K seriously

On Feb. 3, a Russian official put the cost of Russian year 2000 fixes at \$3 billion — six times the original estimate — and asked for aid and advice from the U.S. and NATO. In an interview conducted via E-mail, Computerworld reporter Matt Hamblen asked **John A. Koskinen**, chairman of the President's Council on Year 2000 Conversion, to react.

Q&A

Q: I'm pleased that they have moved away from their earlier position that the year 2000 problem would not affect them and they'd wait to see if any system failed.

Q: Does this Russian acknowledgment imply that problems and costs worldwide are going to be greater than expected?

A: We've been talking about the risks of international failures for the past year. This is why we worked to organize the meeting at the UN in December of senior year 2000 executives from 120 countries and why we've provided a senior U.S. executive to help organize and direct a new International Y2K Cooperation Center, intended to promote cooperation, action and information-sharing among nations. We've also organized, through the Coast Guard, a meeting of major international shipping organizations in London the first week of March.

Q: What's the Clinton administration's reaction to the request for year 2000 assistance?

A: I am not aware of a formal request at this time. We have been working with the Russians through the Defense Department and others to increase their awareness and activities and have been providing technical assistance.

Q: Are you surprised by the request?



PRESIDENT'S COUNCIL Chairman John Koskinen says he's pleased Russia is aware of its Y2K woes

countries such as China if it helps Russia?

A: We've provided \$12 million to the World Bank to continue its support of international year 2000 activities, along with the activities noted above.

Q: Would you describe these tremendously increased costs as a grave development?

A: We have for months been focusing on the challenges the world faces with the Y2K problem. This [Russian] report is simply another indication of the importance of the problem. It looks "grave" only if it's the first time you consider the challenges other countries are facing. ▀

Philippines Making Y2K Move

BY MELBA-JEAN M. VALDEZ
MANILA

Two bills filed in the Philippine congress seek to grant tax incentives to companies that undertake year 2000 conversion projects and make it illegal to build, import or sell non-compliant systems.

The bills also include incentives for user companies trying to fix their own year 2000 problems. Those could include tax deductions for expenses incurred on year 2000-related projects or exemption from any import duties on equipment needed for such projects.

The bills closely define criteria for both year 2000 compliance and provide avenues through which consumers can lodge formal complaints. They also expressly ban dumping any noncompliant consumer product or declaring a product is compliant without testing and accreditation. If the bills are made law, those flouting them can be fined and/or jailed for up to six years.

Proponents said the bills could be passed in as little as two months. ▀

Valdez writes for Computerworld Philippines.

SNAPSHOT

Competitor Comparison

Here's how the makers of Pepsi and Coke are reporting their year 2000 efforts:

PEPSICO INC.	COCA-COLA CO.
--------------	---------------

Fortune 500 rank*	31	68
Spending as of Sept. 30, 1998	\$28M*	\$60M*
Estimate of total Y2K cost	\$130M	\$130M to \$160M

* As of April 27, 1998 ** Pepsi's Q3 ended Sept. 5. Coca-Cola's Q3 ended Sept. 30

SOURCE: COMPANIES' LATEST 10-Q FILINGS WITH SECURITIES AND EXCHANGE COMMISSION

CAREER COUNSELOR/LINA FAFARD

Hate your job? Then get out!

THINK ALL YOUR colleagues are jumping ship just for fat paychecks and sign-on bonuses? Think again. The No. 1 reason people change positions is because they hate their boss — and that includes information technology professionals.

And I have more news for you — if you find yourself in those ranks, your boss probably hates you, too! That makes it very difficult to do a good job, no matter how hard you try.

Are you alienating your family? Is even the dog refusing to play with you because you're so depressed? Please, do everyone in your professional sphere a favor — including yourself — and leave!

In case you haven't noticed, you're in the hottest job market in history and, yes, the grass can be *much* greener on the other side.

Dream for a moment about what the greatest job in the world would be for you. (Time's up.) Now, what's your greatest Plan B job that you can actually do? (Hey, none of us really gets our dream job.)

Perhaps you hate your job because you aren't good at it, or at least don't feel you're good at it. Ask yourself if you're working for a company that overworks you, underappreciates you — or both.

Then ask if that situation can be fixed, if the effort is worth it or if the only way out is to leave.

Leave Your Baggage Behind

Caution: Also ask yourself if your attitude is so bad that even if you left, it would follow you. You don't want to bring emotional baggage to the next IT job.

Make sure you aren't focusing only on the negative — take the positive into consideration, too. If it's truly a grim, no-win situation, then for goodness' sakes, get out now.

Make a list of what you real-

ly want in a job, then explore the possibility of doing so in your existing company. If that job doesn't exist in your company, you may want to contact a recruiter and/or search the Internet to find out about the job you want.

Play the Match Game

Factors to consider include the following: job duties, compensation, access to new technologies training, location of those types of jobs, the types of companies, future career paths and so on. Match them against your current job and a job you would consider.

Many people want the ideal job but aren't willing to do the work it takes to get there. If there are specific educational requirements necessary to snare your ideal job, don't hesitate — enroll.

Remember, getting education or training takes time. The sooner you start the process, the sooner you can change your life.

To grow professionally and personally, you must move out of your comfort zone and learn something new.

It's very simple to get the job you want. It could be as easy as

listening to a second-language series of tapes during your commute. Perhaps taking a class in public speaking to improve your presentation skills is all you need. Maybe your dream job is just one more technical class away. Discover what you're lacking (hey, you can even ask your "ex," if his or her advice will help), and fix it.

Speak Up or Get Passed Over

If you're any good, your technical skills are in demand. Meet with your supervisor to go over your career goals.

Let him know that it's time for a change. During the meeting, find out what it's going to take to get the next promotion or enable you to do the job you really want.

Don't complain about your current job. Keep the focus on the future and getting the desired position. Determine what skills are needed in that job — not just IT skills, but business, management and communication skills.

Find out what obstacles, if any, your boss thinks you need to overcome to recommend you for the job you want. Although that could be hard to take if you hate each other, it also could be good, honest feedback. At the very least, it will be an exercise in self-control.

If that job is in your immediate department, put an agreement in place that if and when you overcome those particular obstacles, you will get the desired position.

If that new job isn't in your department, tell your boss that you would like to pursue opportunities outside of your department.

Next, contact the human resources department to explain your career desires, to describe the new job you really want and to ask for help in obtaining that position.

Offer a transition plan. Volunteer to find, help and train the person who will replace you prior to moving into your desired position (within reason).

Make yourself available for interviewing replacement candidates and answering transition questions. Agree to a time frame for the transition plan.

Don't let the stress of getting your work accomplished take precedence over getting the job you really want. Stop

On Your Way Out:

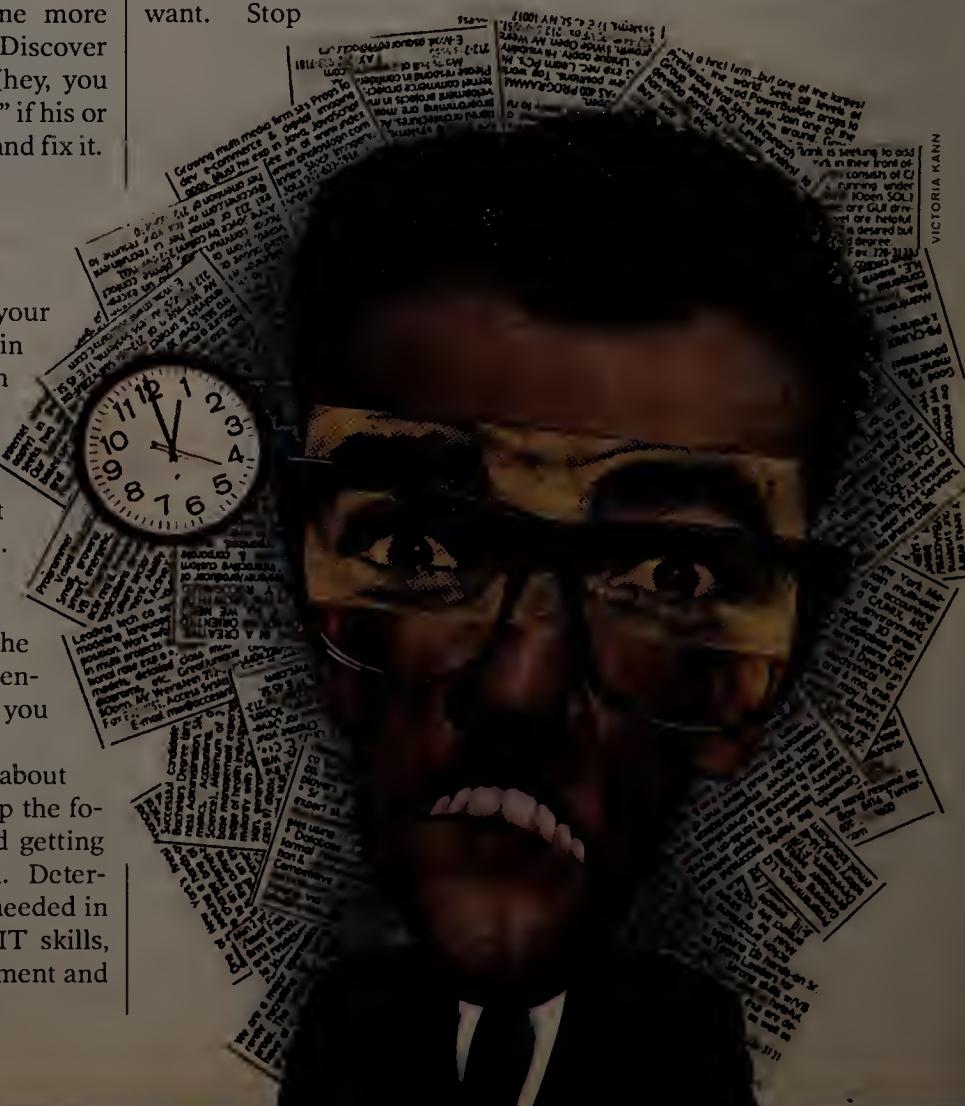
1. Research your desired job duty requirements.
2. Make a list of why you would be good at the job and happy doing it.
3. Prepare and commit to do what it takes to get there.
4. Find out where the job is; look internally first.
5. Create an exit and entrance plan.
6. Share your career desires with your boss.
7. Plan your transition to your new, great job.
8. Work your plan.
9. Celebrate!
10. Do it again (continue the process throughout your career).

stewing in it. Take the necessary action to get the job you'll love.

No one is going to knock on your cubicle and hand you your dream job, a raise, a promotion and a great boss. You have to make it happen and you can!

Hurry up; your dream job is waiting for you, and it's behind schedule. ▀

Fafard is a branch manager at Montgomery West, an executive search firm in Torrance, Calif. Contact her at lfafard@montgomerywest.com.



Get the news for yourself.

Order your free copy of Cap Gemini America's Y2K Readiness Survey.* You'll see the progress that major U.S. corporations and government agencies are making as they try to meet the Y2K deadline. The quarterly survey, conducted by Dr. Howard Rubin, CEO of Rubin Systems, Inc., is one of the longest running surveys to systematically monitor Y2K readiness.

name _____

title _____

company _____

address _____

phone _____

fax _____ CW2

e-mail _____



1-888-Y2K-TODAY • www.usa.cpgemini.com/y2k • Fax: 212-944-8760

quantities limited.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO.113 SMITHTOWN NY

POSTAGE WILL BE PAID BY ADDRESSEE

CAP GEMINI AMERICA TRANSMILLENNIUM™ SERVICES
P.O. BOX 9043
SMITHTOWN, NY 11787-9841



WE JUST GAVE 20
OF THE WORLD'S
LARGEST COMPANIES
VERY DISTURBING NEWS.

(And they couldn't be happier.)

Discover the truth about your Y2K progress.
With TransMillennium QUICKcheck™.

Thousands of companies are facing an uncomfortable moment of truth as they start testing millions of lines of renovated Year 2000 code. Companies using QUICKcheck™ have found that, on average, 11% of renovated programs are still not Y2K ready. Which means testing will be slower, confidence lower, and the chances of meeting the Year 2000 deadline even slimmer.

Fortunately, there's a way to avoid these unpleasant surprises. Call

Cap Gemini America for an independent appraisal of your MVS COBOL applications before or after Y2K testing.

In just two weeks, we can show you precisely where we found overlooked Y2K errors, which can help you accelerate testing. This will give you a greater chance of meeting your Y2K deadline, and help in demonstrating due diligence.

The truth about your Y2K progress may hurt at first. But the end result should make you very happy indeed.

For more information and a FREE copy of Cap Gemini America's Y2K Readiness Survey*, call 1-888-Y2K-TODAY or visit www.usa.capgemini.com/y2k.



Up to Speed - Fast

Want new hires to stay? Start them off with a good orientation program that gets them working right away

BY ALAN S. HOROWITZ

THINK ORIENTATION programs for new information technology hires are just nice ways for management to say hello? Think again.

For one thing, they help you hang on to the hard-to-find technowiz you have just found.

"The first step in retaining an [employee] is a good orientation program," notes Kathleen Alexander, senior vice president of human resources and information resources at hotel giant Marriott International Inc. in Bethesda, Md. Making the employee feel welcome and helping him understand the company's culture can make a "big difference," Alexander says.

And an effective orientation boosts productivity by getting new employees "up to speed very quickly," says Christine Rousseau, CIO at Spalding Sports Worldwide in Chicopee, Mass.

Here are six elements for an effective and efficient orientation program aimed at new IT hires:

1. The Big Picture: When Ben Zipkin was hired last year as manager of Internet programs at Renaissance Worldwide Inc., a Newton, Mass., consulting firm, he wanted to learn right away "what my role is on the team, what my directives are, what the strategies are and, most importantly, the overall vision." Renaissance's new-employee orientation program addressed his needs with a twofold approach.

First, a corporate orientation program conducted by the human resources department gave him standard information on topics such as benefits and vacation time. That was followed by a department-based orientation from his manager. It included discussions of group strategies and goals and the relationships among all group members. After participating in the program, Zipkin says, he understood his position in the group and where it wanted to go.

But that doesn't happen at every IT shop. Bob Zawacki, professor emeritus of management at the University of Colorado in Boulder and head of consulting firm Zawacki and Associates in Colorado Springs, says many companies excel at orienting new hires to basic nuts-and-bolts — human resources policies, benefits and so on — but

stumble in providing an overall vision.

2. Mentors/Buddies: Mihir Dsai, an associate at the accounting and consulting firm PricewaterhouseCoopers in New York, says his orientation program made sure he never felt alone. On his first day last June, he says, he was assigned a "buddy" (a peer with up to a year's experience) and a "coach" (a senior person). They helped cover all bases. The peer helps Dsai get oriented, answers basic questions and updates him on important inside news such as a recent E-mail on hot company projects. The coach addresses professional development issues. In addition, Dsai had his orientation class of 20 or 25 new hires to lean on. They were encouraged to quickly establish a network among themselves; it contin-

ues today, largely via E-mail.

Ryland Harrelson, vice president of human resources at credit-card processor Total System Services Inc. in Columbus, Ga., says he considers mentoring vital in keeping employees. "If you don't like the quality of your supervision, you won't stay." Harrelson recently came to Total System Services from Sears, Roebuck and Co. in Hoffman Estates, Ill., where he cut the annual turnover rate by more than half, from the 17%-to-18% range to 7% to 8%. Mentoring was a chief reason for that decline, he says.

3. Be Prepared: No one likes to wait for a desk to sit at or for someone to show them the ropes on his first day. Xerox Corp. knows that and makes sure everything is in place ahead of time. "We

have all things situated before they even start as far as having all their computer equipment ready, their phone, their voice mail, their E-mail," says Patrina Cole, a human resources analyst at Xerox's information management department.

Terri Kemmerer, human resources manager for IT at the agriculture and food company Cargill Inc. in Minneapolis, created a first-day orientation checklist for managers that covers everything from department policies and procedures to assigning a mentor to explain the employee's job, including the correct method of accomplishing the job, whom they report to and the standard of expected performance.

4. Training: Spalding provides new IT employees with two weeks of training, including teach-me modules that deal with such technical topics as data organization and how to operate the company's Hewlett-Packard Co. mini-computers, Rousseau says. Greg Myers, human resources director for the systems integration consulting unit at PricewaterhouseCoopers, views the training needs for experienced and inexperienced newcomers differently. When more-experienced people are hired, "it's usually for a specific job, and they're put to work right away, which I think is very, very important. With [recent] college [graduates], we put them through training" on technologies and consulting practices. Everyone receives two or three days of basic orientation, which includes an overview of the organization, specifics about the firm's many databases and standard human resources information.

5. Interesting Work: If those lowest on the food chain get only the crumbs, don't be surprised if they don't stick around long enough to be served a decent meal. "People who have been around for five or six years don't necessarily believe that newer people are appropriately qualified, so they give [them] uninteresting and routine jobs that would turn off just about anybody," says Diane Tunick Morello, a research director at Gartner Group Inc. in Stamford, Conn.

"If you can put new people under a good project manager and [give them] interesting work, that's the most important thing there is," Zawacki adds.

6. Ask and Learn: You may think you know what a good orientation should be — but maybe you don't. Alexander is now asking new hires about a month into their jobs what they thought of their orientations. She will use the responses to help hone her program. ▀

Horowitz is a freelance writer in Salt Lake City. His E-mail address is alan@ahorowitz.com.



COLIN JOHNSON

NEW REPORTS

IDC Explains Seat Management

International Data Corp. in Framingham, Mass., has released a bulletin that explains the concept of seat management and how it can minimize desktop costs at midsize to large companies.

Titled "Seat Management: A Concept Designed to Minimize the Total Cost of Ownership," the report outlines an 18-month pilot project for evaluating which seat management functions are the best candidates for outsourcing.

Those include asset management functions, LAN and WAN network administration, help desk activities, hardware maintenance, installation of software upgrades and server management.

The report costs \$1,500. www.idc.com

Buying Reaching Critical Mass? - says that more respondents purchased gifts online (53%) than shopped via paper catalogs (40%) last year.

Respondent profiling and demographic information is provided.

The report costs \$895. www.zonaresearch.com

BRIEFS

CSC Team Gets Postal Contract

The U.S. Postal Service has awarded a contract potentially worth \$198 million to a systems integration team led by Computer Sciences Corp. The contract is intended to develop and implement a payroll/human resources system for the U.S. Postal Service, which has 875,000 employees.

Y2K Bookings OK

Amadeus, the Madrid-based travel industry service, said it has successfully processed more than 500,000 airline bookings for year 2000 travel on nearly 300 different carriers from around the world.

Show Me The Money

What perk would increase your loyalty to your employer?

A raise	43%
Improved benefits	23%
A more flexible work schedule	14%
Stock options	9%
Better training	5%
Don't know	6%

Base: 660 working Americans

SOURCE: BRIDGEAGE LLC, IRVINE, CALIF.

Shopping Survey

Zona Research Inc., based in Redwood City, Calif., has announced a 75-page report on online shopping, based on a holiday shopping survey of 1,022 Internet users. The report - "1998 Holiday Shopping: Is Web-based

ED YOURDON

Shape up or ship out

DURING THE NEXT few months, year 2000 project managers will trigger the largest shift in business-to-business relationships in modern history. Most organizations now have a long list of vendors whose year 2000 status is either unknown or highly suspect. The moment of truth is approaching: If they aren't ready, it's time to stop doing business with them. We've been talking about this for

months in year 2000 project teams across the country. We've continued to hope that our key vendors will somehow accomplish a miracle and convince us they're going to be ready. But the decision to switch will have to be made this spring. The decision may have to be ratified by senior management, or even by a board of directors' resolution, but it will be based on the recommendations of the year 2000 team.

The most obvious remedy is to replace the noncompliant vendor with a compliant one. But such a switch is painful, expensive, time-consuming and risky. A Fortune 500 company doesn't casually change its primary banking relationship or telecommunications vendor overnight. Consequently, a transition from bank A to bank B, or from telecom vendor X to telecom vendor Y, has to be done sometime during the first half of this year so that the new relationship can be established, new computer systems installed, new computer interfaces tested and the inevitable glitches resolved. Nobody in his right mind is going to attempt such a major transition in the fall; it would be like playing Russian roulette with five live bullets.

What makes this potentially explosive is that the same decisions will be made at approximately the same time all over the country. If a single Fortune 500 company decides to switch its relationship from telecom vendor X to telecom vendor Y, it probably wouldn't be catastrophic for X. But if 10 or 20 or 100 of the Fortune 500 companies abandon X because of a common perception that X is unlikely to finish its year 2000 work in time, it will have profound consequences — especially if X is itself a Fortune 500 company.

Once that begins to happen, there may be a sea change in business-to-business relationships that could make the investment banks, mutual funds and brokerage firms begin scram-

bling to shift their own funds out of the perceived "losers" into the perceived "winners." The politics surrounding all this would be intense; the CIOs of "loser" vendors should be prepared to be in the spotlight several months before Jan. 1, 2000.

You should be prepared for some arm-twisting from senior management as well as requests for continued procrastination. Your CEO, for

example, may call you into his office and say, "I know you're concerned about the lack of cooperation we've been getting from the year 2000 team at XYZ Co. But the CEO of XYZ and I were playing golf last weekend, and he personally assured me that they would be ready. So I'd appreciate it if you would rethink your recommendation to switch suppliers." Or you might get a call from the chief financial officer, who'll say, "I know you've been threatening to pull the plug on our telecommunications provider because of its lack of year 2000 progress, but do you realize what it would do to our profits this year if we switch? I really think we should wait another three to six months before we make such an important decision."

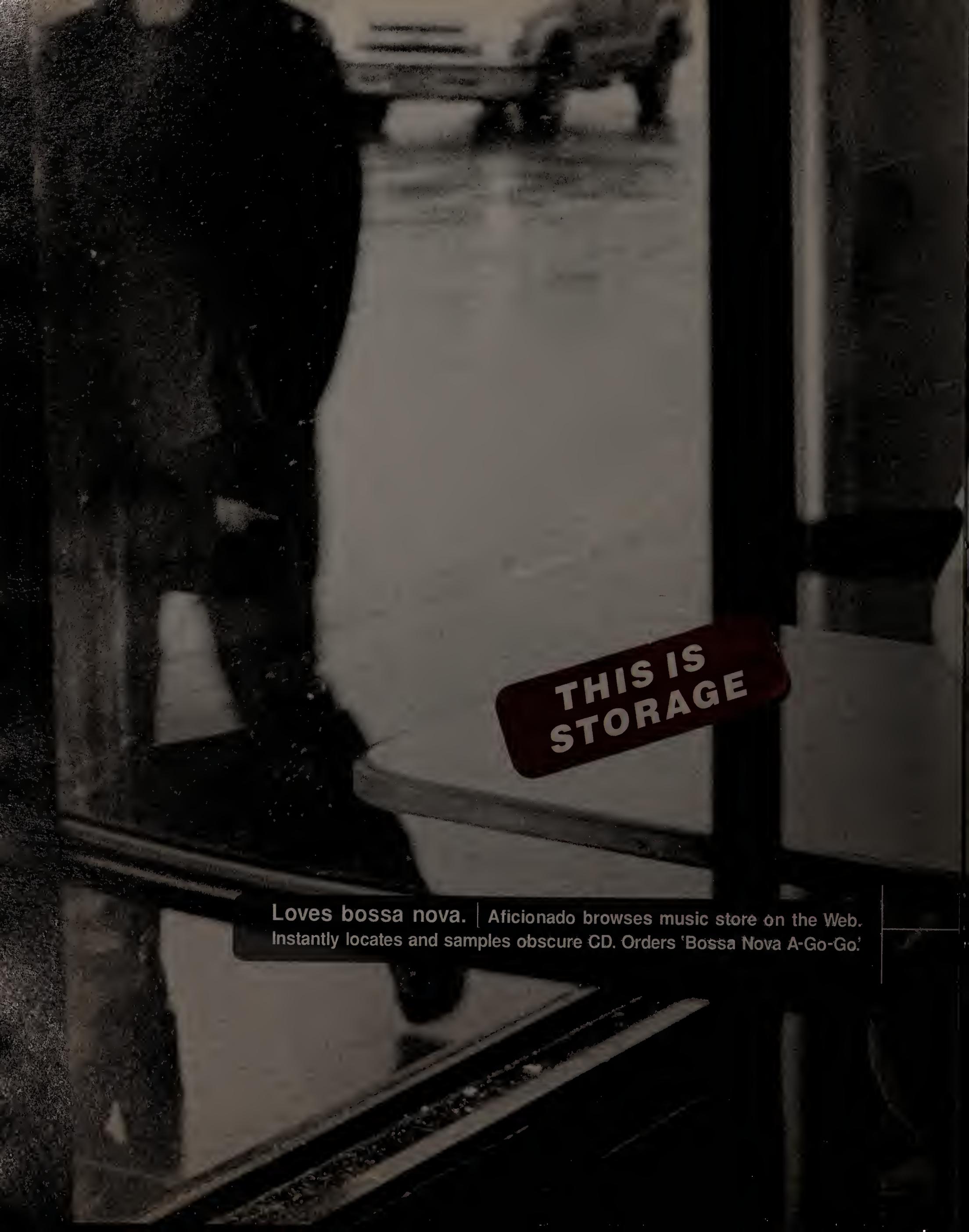
Ultimately, the decisions will have to be made by the CFO, the CEO or the board. But if things turn sour at the end of this year because senior management dawdled, you're likely to find that

their memory of early 1999 suddenly is fuzzy. Thus, it's crucial that your advice and recommendations about the year 2000 supply-chain risks be loud, clear and unequivocal. This is indeed the moment of truth with regard to mission-critical suppliers. Don't let your senior management forget it. ▀



*Be prepared
for some
arm-twisting
from senior
management.*

Yourdon heads the year 2000 service at Cutter Consortium in Arlington, Mass. His most recent book is Time Bomb 2000. His Internet address is ed@yourdon.com.



THIS IS
STORAGE

Loves bossa nova. | Aficionado browses music store on the Web.
Instantly locates and samples obscure CD. Orders 'Bossa Nova A-Go-Go.'



Why rethink storage? | e-business means data is being looked at, listened to and interacted with in ways that can overwhelm your storage system. Keeping a complex mix of files, from small to colossal, accessible to everyone, night and day, can be the difference between closing a sale and a closed door.

How IBM storage can help you. | Versatile Storage Server™ delivers cross-platform access, including UNIX® and Windows NT. And Virtual Tape Server offers intelligent disk-caching to maximize the use of tape capacity — making your system more economical. Disk, tape or optical, serial or fibre-based connectivity, nobody offers a wider range of storage tools, software and services.

Make the most of your data: www.ibm.com/storage/tools

e-business tools

State Street Bank's change in direction required a new IT approach. Here's how CEO Marshall N. Carter steered the ship

By Kathleen Melymuka

THE CEO

NAME: Marshall N. Carter

TITLE: Chairman and CEO of State Street Bank and Trust Co. and its holding company, State Street Corp.

AGE: 58

PERSONAL: Married, two children

EDUCATION: Bachelor of science, civil engineering, U.S. Military Academy at West Point; master of science, operations research and systems analysis, U.S. Naval Postgraduate School; master of arts, School of Public and International Affairs, George Washington University.

EXPERIENCE: Former Marine Corps officer, two tours of duty in Vietnam, awarded Navy Cross and Purple Heart; White House Fellow at State Department and Agency for International Development; Chase Manhattan Bank Corp., 1976-91 (last position: chief of global securities services).

HOBBIES: Commercial pilot, flies his sea plane near his summer home.

MARSHALL N. CARTER has changed the course of the venerable State Street Bank and Trust Co. in Boston since taking the helm as CEO in 1992. At that time, State Street was a highly centralized investment bank focusing on asset custody: keeping the accounts of institutional investors such as corporate treasurers, pension plan managers and mutual fund managers. It also was highly successful, boasting 15 straight years of double-digit revenue growth.

But Carter was convinced that the bank had to broaden its focus to asset management: the decisions and activities involved in trading securities. He found that changing a successful strategy was easier said than done. The bank's technology, though formidable, was basically a humongous book-keeping machine.

The technology requirements to play in the asset management markets were different — and staggering: The bank would have to gather, coordinate and analyze enormous volumes of data from around the globe — capabilities based on huge, mainframe-oriented, transaction-processing engines. It also would have to provide user-friendly, PC-based, Internet-enabled tools to let the bank's customers — institutional investors — access and manipulate that data for their own purposes.

Simultaneously, Carter would have to retool a highly centralized, tightly controlled corporate culture into one with independent businesses working in an entrepreneurial style.

"It was as if you had an auto company and all you made was pickup trucks," he explains. "All of a sudden, you need to make sedans and station wagons. How do you actually develop those from a truck assembly plant? How do you get people to sell them, service them, put bells and whistles on them so you can make more money than with this plain-vanilla pickup truck?"

In just over six years, it's a done deal. Carter has reinvented State Street, transforming it from a bank using technology to serve its customers to an information technology company providing state-of-the-art tools and services to its customers. The bank's total revenue, profits and earnings per share more than doubled during Carter's first five years, and last year marked the 21st consecutive year of double-digit growth. Revenue was up 17%, the asset custody business grew by 23%, and assets under management did one better: up 24%.

Last year, Carter won Gartner Group Inc.'s Excellence in Technology Award, and his vision has been widely praised. "He is an excellent CEO," says Heather Bellini, an analyst at Lehman Brothers Inc. in New York. "If you talk to competitors about who runs the business the best way, people always mention State Street."

Still, success hasn't come cheaply. The bank's technological bells and whistles have come at the expense of some basics, and Carter's liberal spending habits sometimes make Wall Street nervous. But Carter, a Vietnam War veteran, is unfazed by his critics. "In business, they don't shoot real bullets at you," he smiles, "just paper bullets."



OLD
NEW

Charting a Course

In 1792, a group of Boston ship captains founded State Street Bank, and the organization sailed straight until the 1970s when CEO William Edgerly steered away from traditional banking to asset custody. The bank found a niche in the processing-intensive business, and by the time Carter became CEO, State Street already had become a processing powerhouse.

But if the bank had begun to look like a technology machine under Edgerly, it began to think like one under Carter, who's known for long-term, strategic planning and has little patience for shortsightedness. "I've worked for organizations where strategic planning was thinking about what you were going to have for lunch," he says. But Carter was looking beyond the bank's success to how it could retain its edge during the next 20 years.

This is what he saw. The securities investment process has three phases: pretrade, in which you analyze the market; the actual trade, in which you settle accounts; and posttrade, in which you maintain records. Research showed that the posttrade part of the cycle, which the bank emphasized, accounted for only 16% of the revenue potential. Trading was 60% and pretrade, 24%. "So if we wanted to continue to grow, we had to broaden our product line," he explains.

Re-rigging

To spur growth in the asset management business, Carter had to jumpstart the bank's technological brainpower and blow away the competition with speedily developed state-of-the-art products. He did that by breaking

THE COMPANY

State Street Bank and Trust Co.

ASSETS UNDER CUSTODY:	\$4.8 trillion
ASSETS UNDER MANAGEMENT:	\$485 billion
ANNUAL REVENUE:	\$2.8 billion
GLOBAL SCOPE:	Does business in 82 countries
EMPLOYEES:	16,800
SECURITIES-RELATED	
TRANSACTIONS PER MONTH:	2 million
CASH MOVED DAILY:	\$200 billion
WEB SITE:	www.statestreet.com

down the centralized State Street culture into separate businesses, each with its own CIO. "My predecessor was brilliant," he says, "but every decision came to his desk. I had to decentralize decision-making, authority and — even harder — entrepreneurship and innovativeness. I wanted to have them make the decision."

Carter demanded that each business take responsibility for its technology. For example, the head of global foreign exchange trading was given responsibility for delivering Global Link, a huge technological success. It gives institutional investors PC-based tools to analyze foreign exchange markets and perform trades online, putting the bank smack in the middle of the pretrade/trade markets. That development strategy, which cuts down on the back-and-forth between businesspeople and techies, cut development time for Global Link in half, Carter says.

"Business and tech people work hand in hand," says corporate CIO John Fiore. "I attribute that to the philosophy that Marsh has."

That philosophy is simple: Technolo-

gy is the business. "We're not using technology to augment some manual process," Carter says. "We could never go to a manual process."

From Global Link to In-Sight, an Internet-enabled, online system that delivers products to help pension managers analyze and adjust their portfolios in real time, Carter's technology products have wowed Wall Street. "State Street has been an amazing story," Bellini says. "It has great people on the technology side, and they have a lot of great ideas in their pipeline that they can tap at any time."

View From the Bridge

Carter's style is highly personal. He's known for calling anyone anywhere in the bank to get the pulse of an issue. "He doesn't get hung up by titles or levels in the organization," says John R. Towers, executive vice president of global operations.

Fiore recalls that when he was technology chief for a small line of business at the bank, Carter often would show up at sales presentations. "I can't tell you how much of an impact it had on me as an employee — let alone on the client — to have the chairman of State Street fly in," Fiore says. "You can't help but get geared up to run through brick walls when you see the chairman take time to do those kinds of things."

Carter approaches technology as a bit of an insider: One of his three degrees is in systems analysis. "For a CEO of an organization the size of State Street, he's very tech-savvy — in some ways maybe too tech-savvy," Fiore laughs. "He's always coming up with ideas. He's always challenging you."

Carter balances his technology know-how with a CEO's vision. Five

years ago, when the bank was developing software to translate between mainframes and distributed networks, the technologists anticipated a couple million transactions per day, but Carter demanded that the system's capacity be limitless. It now routinely handles 150 million transactions daily. "One of our underlying principles is to make things scalable so there's never an upward bound on what can happen," he says.

Spending Strategy

But that principle requires liberal spending, and lately, there have been some grumblings on Wall Street that State Street's expenses have been growing faster than revenue.

Fiore's response: State Street should be judged as an IT company, not a bank. "The metrics that drive our business are very different from those of a retail bank," he explains. *The Economist* magazine agrees, reporting in its July 13, 1996, issue that although State Street's spending/revenue ratios are unfavorably high compared with U.S. banks, they're highly competitive when compared with information management firms such as Electronic Data Systems Corp. and First Data Corp.

Carter is unapologetic for the spending/revenue picture. "I told them I was managing the company on a strategic track and we had to reinvest now," he says. "Wall Street didn't like that at all. All they wanted was a quarterly number."

Carter acknowledges that he has spent freely. "Sure, we probably spent millions of dollars that we might not have had to spend, but that's the price you pay [for] speed," he says.

That price may have been a down payment on the future, Bellini says. "It appears that they will continue to gain share in most of the markets they're in."

Carter also acknowledges that in his quest for creativity, he has shortchanged some of the basics. For example, the technology powerhouse still has no companywide E-mail system. But he hesitates to impose standards on the businesses. "If you're really going to focus on revenue growth," you have to give the charge to your business executives.

Still, he says, "There's a balance, and we're beginning to say we need to balance it better."

Achieving that balance is part of Carter's challenge to continually reinvent the bank, but that's the kind of challenge he likes best. "That strategic plan is 6 years old now," he says with undisguised eagerness, "so we're in the process of figuring out what we do into the next century." ▶

Melymuka is Computerworld's senior editor, management. Her E-mail address is Kathleen_Melymuka@computerworld.com.



GET ME OUTTA HERE!

Low staffing. High stress. Long, long hours. For many IT professionals, the No. 1 requested benefit has become ...

TIME OFF!



BY MARY BRANDEL

Two very different information technology professionals; two very different attitudes about balancing work and time off. Increasingly, however, it's the Weissenbuehlers of the world whose needs and desires companies must respond to (see exhibits at right). That is, if they want to sustain or improve their retention rates.

"Right up there with salary is time off with families," says Diane Thom, human resources manager at Comerica Inc. in Auburn Hills, Mich. Comerica surveyed employees three years ago and instituted policies such as a 9/80 program to soothe the ruffled feathers of the overworked. "I just think the whole attitude in life today is that people want more time off," says Donald Schuman, vice president of information services at Ace Hardware Corp. in Oak Brook, Ill.

Exacerbating this general change in attitude is the industry's over-demand and undersupply of technical talent, according to Mark Polansky, managing director of the IT practice at New York-based Korn/Ferry International. Add to that the increased demand for IT projects, plus year 2000 and electronic-commerce projects, and you've got a "really stressed-out situation," Polansky says.

In addition to retention bonuses and other goodies thrown at qualified IT people, more companies are offering enticements such as extra personal time and "a general accommodation to give-and-take," Polansky says. For example, if an employee endures grueling hours on an important project, he might be rewarded with three days' vacation.

That's the case at Ace Hardware — up to a point. "We're willing to give programmers comp time or paid overtime," Schuman says. However, because of the skills

Time Is on My Side (Yes It Is)

What if your company doesn't have any formal policies in place to give employees flexibility or extra time off? Or maybe you feel you aren't able to clear your desk in order to get the vacation time you need? In those cases, take a hard look at how you prioritize your work. "I would ask the question, 'Am I really spending all my time on the most important things the organization is trying to focus on, or am I off'

on some tangent?'" says Bob Uhrina, manager of Internet-related systems at Sears.

"If the management team doesn't recognize the amount of effort you're putting in, establish what is important, put it on paper and agree on it," Uhrina says.

Often, information technology managers aren't fully aware of what flexibility is available inside the organization, says David Dell, research director at

EXHIBIT A:

Matt Weissenbuehler is a project manager in the year 2000 effort at Coors Brewing Co. He lists his priorities as life first, work second. He tries to limit his hours to 40 per week, but that's getting tougher given the looming millennial deadline.

But Weissenbuehler feels so strongly about getting time off that he helped institute a "9/80 program" at Coors in which employees can work an extra hour per day for nine business days in exchange for every 10th day off.

"I carry a pager at all times, but if I'm on vacation or out of town — tough luck," Weissenbuehler says. He does, however, concede to checking voice mail. Time out of the office is very important. "It's how I keep my sanity," he says.

EXHIBIT B:

Bob Uhrina is a manager of Internet-related systems at Sears, Roebuck and Co. He works 10- to 11-hour days. His last vacation was a year ago. In addition to his luggage, he brought his laptop computer to check E-mail (which averages 80 messages daily) and the Web hosting site daily.

Uhrina wakes up at 5 a.m. and checks his E-mail before arriving at work. "I enjoy what I do. It's more of a hobby," Uhrina says. "So the issue of time off vs. time spent at work is not an equation that's on the top of my mind."

shortage, "we're tending to want to pay them for overtime rather than with comp time," he adds.

But many workers would rather get the time than the money. "We've seen people walk away from significant bonuses rather than deal with the continued stress of long hours," says David Dell, research director at The Concours Group, a consulting firm in Kingwood, Texas. And at Coors, where approximately 60% of employees

take advantage of the 9/80 program, workers also can buy up to a week's worth of extra vacation time.

At Ace, newer employees with just two weeks' vacation have requested deductions from their paychecks that go toward extra days off. "We can bank holidays and vacation days and put the money in a savings account. But I'd rather take the days," says Chris Deboo, manager of the corporate IT operations and networks at Ace.

Ironically, in Deboo's case, it's flexible hours and telecommuting that have formed her attitude. Ever since her first child was born, "my work schedule has changed dramatically," she says. Although she still logs many hours, less of it is in the office and more is at home, where she has E-mail and voice-mail capabilities.

Because it has gotten more difficult to separate work from home, "I really need the mental break of vacation, that feeling of, 'I'm out of here,'" Deboo says. Once on vacation, Deboo says she has to exhibit some real discipline not to check back with the office. "On my last vacation it was a chore, but I didn't even log on to check E-mail. Of course, I had 100 E-mails when I got back into the office," she says.

Companies that have increased time-off opportunities don't attribute their better retention rates to these practices. But with turnover numbers as low as Coors' (less than 5%) and Sears' (6%), vs. industry averages of anywhere from 12% to 20%, you have to wonder. "A good strategy for dealing with the personal-time needs of employees can certainly increase retention and improve recruiting batting averages," Dell says. ▀

Brandel is a freelance writer in Norfolk, Mass.

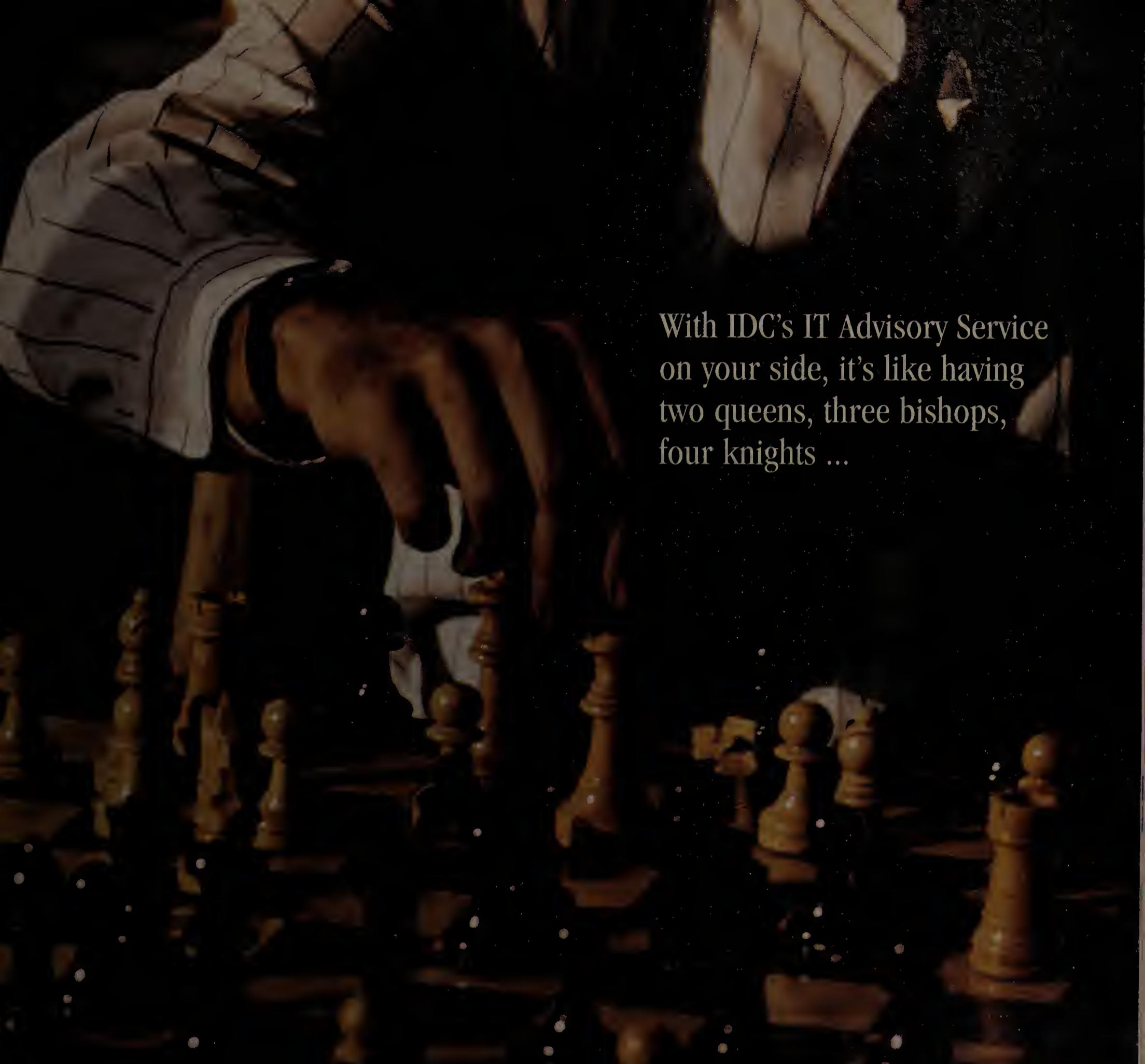
The Concours Group. So you may need to research what arrangements are available to meet your individual needs.

Many employees simply expect the company to be as flexible with its time as they are with theirs. "I get calls at 2 in the morning, and if something's broken, I don't leave until it's fixed," says Drew DeNardo, a project manager at Solo Cup Co. in Urbana, Ill. DeNardo recently earned a few extra vacation days because of a particularly grueling November spent integrating the sys-

tems of a newly merged company.

But no one is going to balance work and life for you. "You have to determine what is important — whether it's your boss or some customer that says, 'How dare you not spend 20 hours of extra time on my problem?'" says Matt Weissenbuehler, project manager at Coors. "Is this truly a situation where you have to work, or is someone going off the deep end? You have to be thick-skinned about it."

— Mary Brandel



With IDC's IT Advisory Service
on your side, it's like having
two queens, three bishops,
four knights ...

IT'S ALMOST UNFAIR. You'll get unmatched, exhaustive research and comprehensive, accurate data, backed by experienced, fact-based analysis. To give you reliable, real-world insights. To both tactically and strategically guide your decision making. To advance your position. And to help you make the right moves to keep you on top of your game.

What information do you need? IT Trends and Directions? Product Comparison and Analysis? Emerging Technology Intelligence? IS Management Advice? Technology Life Cycles? IT Vendor Evaluation? IDC does it all. And more.

Best of all, with IDC you'll get the royal treatment without having to pay for extras. Which means greater value and ROI for your IT research dollar.

Call now toll-free 800-343-4952/x-4773*

...for our latest research bulletin. "Recruiting, Retraining and Retaining: Are IT Managers Doing All They Can?" is *free* to qualified IT professionals. Call today for *your* copy and for more information.

Fact is, when it comes to IT research, you're not mated for life; you've got options. Check us out.

*Attn: Government IT Professionals. IDC was recently awarded a contract for Research and Advisory Services under the Department of the Navy's IT Umbrella Program. Please call 703-280-5161 for details and pricing options.



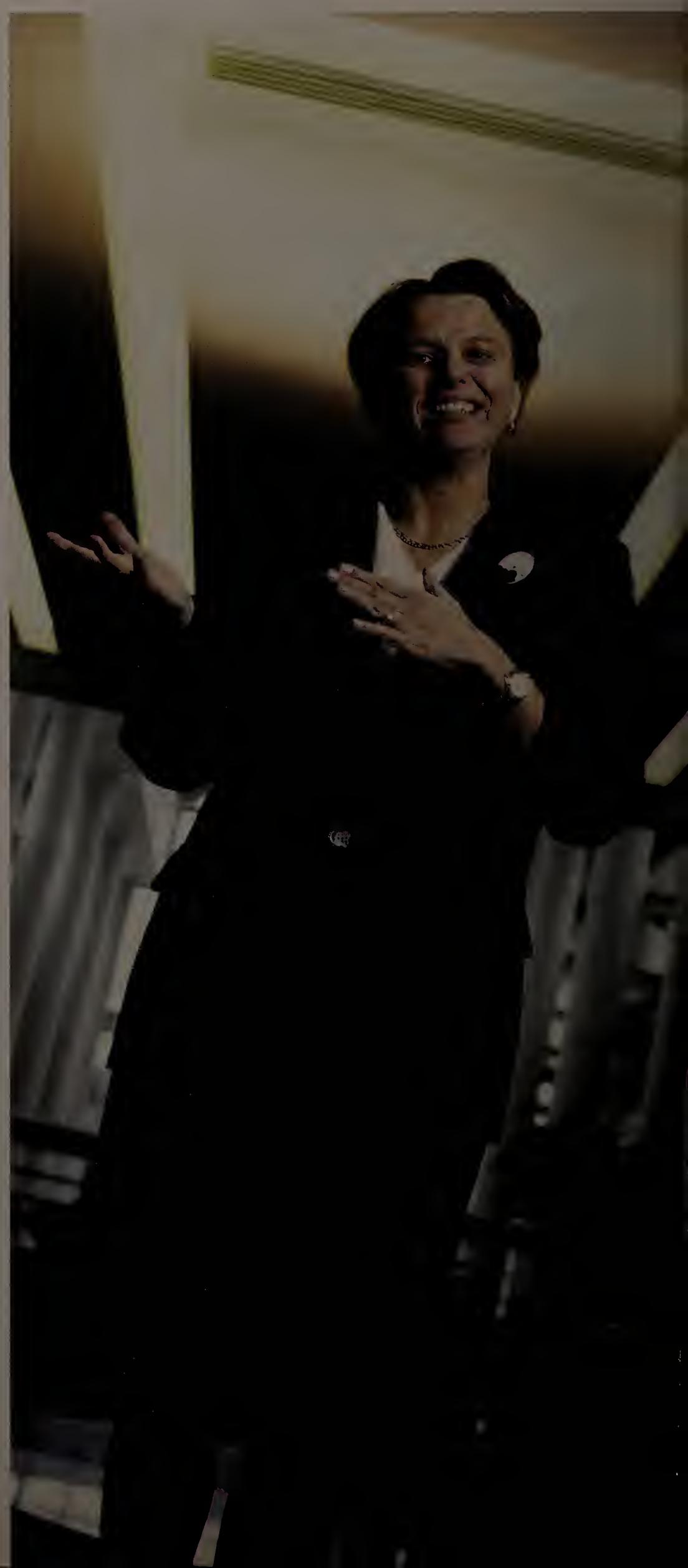
INTERNATIONAL DATA CORPORATION
5 Speen Street, Framingham, MA 01701

MAKE MORE MONEY NOW!

Sure, your paycheck is bigger than it was a year ago, and bonuses are getting fatter and more frequent.

But it's not enough. You want more. Much more. All you can grab. Here are some tips on how you can get the boss to loosen the purse strings

By Thomas Hoffman



TOP 10 TIPS

ON WHAT IT TAKES TO SHARE THE BOSSSES' LOOT

10. The Nose-to-the-Grindstone Award

For managers such as Mike Altiero at American International Group Data Center Inc., employees don't have to make "a big, glitzy achievement" to get due attention. Information technology managers know what it takes to get the job done day in and day out. Most of them came from the trenches.

For Altiero, who oversees network operations and enterprise management at the Livingston, N.J., insurer, fixing a light on a network management console "may not sound like much, but it's important because it's the technical, behind-the-scenes type of stuff I can see as a manager."

9. The Building-a-Better-Mousetrap Trophy

Companies continue to chant the Michael Hammer re-engineering mantra of the mid-90s, even if it has been brought to a low hum. But as managers are forced to squeeze as much productivity out of as few employees as possible (can you say "downsizing"?), it's becoming more difficult to spot opportunities for process improvements and act upon them decisively.

That's why The Allstate Group's Mike Jaslawski would be willing to shower cash on any IT staffer capable of dreaming up brilliant ways of improving efficiency — such as identifying a spot for an intelligent agent where none currently exists.

Being an IT guy himself, Jaslawski, director of enterprise systems management at the Northbrook, Ill.-based insurer, might be assumed to be biased when it comes to criteria. "All IT people everywhere are underpaid, so they all deserve big raises," Jaslawski says.

8. The Making-IT-and-Business-Play-Nice-Together Prize

End users always say nice things about their IT departments — when it's on the record. Off the record and by the office canteen, however, the language often used to describe IT probably would shock even Andrew "Dice" Clay.

Members of BankAmerica Corp.'s call center sales force say "those chip heads don't understand what we're doing," says Randy C. Swift, senior vice president at the Richmond, Va.-based bank. "So we [offer IT incentives] to share in the goals of our call center projects" through bonuses and other reward programs.

The notion of having cross-team incentives for the business and IT folks to share "is starting to take off" at KeyCorp in Cleveland, says Patrick J. Swanick, vice chairman at the bank.

7. The You-Did-Something-Right Grant

IT professionals "usually aren't recognized until something goes wrong," notes Robert J. Hutchinson, head of channel management at Michigan National Bank in Farmington Hills. That's why the bank makes an effort to recognize its IT employees when they do things right "as a key part of rewarding and retaining our top employees," he says.

Cash incentives tend to work well for sales jobs, and noncash incentives such as paid vacations work best for service positions, including IT, says Bridget Compton, vice president and head of compensation at SunTrust Banks Inc. in Atlanta.

6. Learn the Business and Win a Free Trip!

Indeed, the lure of traveling somewhere exotic — and we don't mean heading off to a regional office to help burn in a new LAN — is appealing to many IT professionals. Amadeus National Marketing Cos., a Miami-based marketing arm of the international travel reservation organization, is setting up a travel program to reward IT employees who show an understanding of the business "beyond their technical expertise," says Jim Davidson, president and CEO of Amadeus NMC.

"It's one thing to go out and get top-notch application program-

mers to have something fun and exciting to work on, but [the program is] also intended to help them [expand] the business," Davidson says. "We're not a public company, so we can't offer stock options."

But it can offer, for example, a cruise for programmers who finish a project ahead of schedule. Not a bad carrot.

5. The Entrepreneur-of-the-Year Award

By and large, IT professionals are paid to fix problems, not to dream up new revenue opportunities for their companies. Still, IT managers say they would handsomely reward staffers who thought up brilliant schemes to help the business.

"We're probably an odd place to look since we're a trade association, but what leaps out at me are people who can think of ways of reaching a new segment of retail that hasn't been tapped before. I would reward that," says Cathy Hotka, vice president of IT at the National Retail Federation, a Washington-based trade association.

4. The Innovation Investiture

Managers also are willing to reward employees for simply thinking of better ways of doing things. "We value innovation," says Linda Libbey, director of strategic recruiting and retention at United Healthcare Corp.'s strategic business services group in Hartford, Conn.

To reward its IT employees — including entry-level workers — for innovative ideas, United Healthcare has created the Star Award. Given at least once a month, the program honors both IT teams and individuals for thinking outside the box.

United Healthcare IT employees are eligible to win cash, trophies and T-shirts in addition to the citations of their achievements that the company posts on its home page (www.unitedhealthcare.com). Cash awards range from \$50 to \$1,000.

3. The 999,999-Lines-of-Code Endowment

Doing something well — and doing it right — is enough to catch the attention of IT executives such as Mike Tiernan, vice president of IT at CS First Boston Corp. in New York.

"Everyone [in financial services] is focused on EMU [Economic and Monetary Union conversion] and year 2000. There isn't much going on in new projects or enhancements that would knock our socks off. So what we would reward is outstanding work associated with EMU and Y2K, making sure that our systems are compliant," Tiernan says.

2. The Self-Starter Certificate of Achievement

"The things that knock my socks off are people who seek the undiscovered without being told to do it, pull it together and find an opportunity for the business to become more efficient," says Irene Dec, year 2000 program director at The Prudential Insurance Company of America in Newark, N.J.

Dec points to a staffer who recently put together a document at Prudential called "The Year 2000 Frozen State." It identified specific areas where software projects would be "frozen" in 1999 because "you can't just make a blanket statement that year 2000 is going to stop all IT projects," Dec says.

And the No. 1 way to impress the boss enough to win that big raise or bonus you've been seeking:

1. Just Stay!

"... pleads SunTrust Bank's Compton, a sentiment that's easy to understand given the current IT labor crunch. ▀

Hoffman is senior editor for IT management at Computerworld

DRIVING THE DEAL/JOE AUER

Small and Hungry Beats Big and Sluggish

IN SEVERAL RECENT multimillion-dollar deals, including an outsourcing initiative at a Midwestern bank and a security project at a major consumer products company, the procurement teams selected regional or niche suppliers over much bigger international, full-service providers. This came as a surprise to the procurement teams. They expected going in that they would select the larger suppliers. It turned out the smaller organizations were more flexible and responsive and showed a greater sense of urgency and commitment to getting results. In contrast, the teams perceived the larger organizations as sluggish, bureaucratic and arrogant.

How did these negotiating committees come to their conclusions? These weren't seat-of-the-pants evaluations. They used sound requests for proposals (RFP), negotiations and selection processes to evaluate the larger and smaller suppliers. The process enabled them to uncover that the smaller suppliers were more willing to contractually commit to deliverables.

The tip here? When you send out your RFPs, include a customer-developed, user-oriented contract with performance and reliability standards, specific deliverables, clear and specific warranties and remedies for the customer in the event the vendor doesn't perform as represented. Require potential suppliers to ac-

cept, reject or modify to their liking each provision in the contract as a bid requirement. You'll get better contracts this way because the suppliers will know they're competing on the contractual terms (and know they could get eliminated if their response isn't good enough). This also makes your evaluation of suppliers much more complete and competent. Together, they will help you sort out which suppliers will deliver what you want.

Negotiating Outside GSA Box

Here's a vendor ploy I'm hearing about more and more. This one is increasingly being used against private companies and government agencies.

It plays out like this: A cus-

tomer asks for deeper discounts or lower pricing than the vendor is willing to extend. The vendor denies the customer's request because "our contract with the General Services Administration [the GSA] is the federal government's central procurement agency" won't allow us to give you that price."

Never accept this response; it's nothing but a lie. There are many loopholes that allow suppliers to provide better deals to you than they provide to the GSA. Remember, GSA bureaucratic contracts sometimes maximize pricing, yielding those infamous \$300 hammers and \$400 toilet seats.

One of the easiest loopholes is to structure a deal dissimilar from that of the GSA (GSA

contracts and pricing schedules are public information). Here's a tactic I hear was used in a recent negotiation: Ask the vendor to extend the 1996 or 1997 price list to your current contract.

This allows vendors to extend discounts consistent with those in the GSA schedule but gives you net pricing approximately 5% to 10% less than what the GSA contract dictates.

How Much Does Software Cost?

I often hear buyers ask this question. What I don't hear is a good answer. Purchasing managers and often end users look at software licensing like buying equipment. The rights to use someone's intellectual property isn't like buying equipment.

First of all, you won't own the software. You'll just have some highly restrictive rights to use it. Second, software costs nothing except the price of copying it onto the CD.

So how do vendors price their software? The list price depends on supply and demand, perceived value, the price the vendor needs to get to stay in business and, to a certain extent, what's charged for similar products to similar

customers. But what you'll actually pay depends on your negotiating power. The tip? The price of software isn't about their costs or your ownership. It's about how well you can bargain.

Competitive Process Helps

In a recent \$1.5 million deal, a large health care organization gained several hundred thousand dollars in initial savings on desktop hardware and software through a highly competitive procurement process.

It did it by negotiating on price with three, then two, suppliers simultaneously — once the customer determined the suppliers were capable of providing the appropriate

quality of services and the deals on the table were comparable.

Keen competition enabled the customer to lower the supplier's price significantly. And those initial savings will be multiplied many times, owing to the rights, remedies and flexibilities it also negotiated into the contract. It pays to remember that selection shouldn't precede negotiations, but be a result of them. ▀

WORKSTYLES

What's it Like To Work at . . . Kendall Co.

Interviewee: Sheila Mullaney, systems analyst, help desk.

Company's business: Manufacturer of health care products.

Location: Mansfield, Mass. (40 miles south of Boston)

Information technology staff: 55. Total employees: 350 on-site, plus

remote offices and a mobile sales force nationwide.

Dress code: Business casual (most men don't wear ties; women usually go for dressy pants).

Workday: 8:30 a.m. to 4:15 p.m.; some departments have flex-time. IT staffers often stay until about 6 p.m.

Kind of offices: New five-wall cubes are being installed. Most windows are in offices, not in cubes.

Computers: About 60% are Dell desktops, and more and more people have portables.

Ergonomic devices: Headsets, keyboard trays and mouse pads with wrist support.

Do people use their CD-ROM drives to play music? Yes.

What CDs do people play? Classical music, Neil Diamond, country music; a lot of programmers use their headsets, so there's no telling what they're listening to. Sometimes you won't hear any music at all, and other days, you might hear five or six different kinds.

Any singers in the office? Some singers, but mostly hummers.

Must IT staff carry beepers? Yes.

Percent of IT staff that telecommutes on a given day: Pretty much no one, unless it's a really bad

snow day or an ice storm.

On-site day care? No.

In-house cafeteria/food service: Yes (rates a 7 on a scale of 1 to 10).

Best lunch bet? There's a great salad bar with different soups available every day.

Free refreshments: Coffee, tea, hot chocolate and spring water.

The one thing everyone complains about: A lot of people wish we had better coffee — they think it isn't very flavorful. Some people have coffee makers on their desks.

Where the office gossips: In the coffee room, which is where the toaster and microwave are located.

Favorite item in the coffee room: The candy machine.

Favorite item in the candy machine: Snickers bars — they're gone a day after machine is filled.

Little perks: An active employee appreciation program, through which you get a tin of popcorn or free movie tickets.

Last companywide/department perk: Movie tickets.

Would employees feel comfortable E-mailing the CEO? Yes.

Quote: "People like each other. Because we are in the transition of moving our cubes around, it's a little hectic right now, but I think people enjoy working here."

— Leslie Goff

Tired of
putting out
one fire?
after another?



Bring all your IT services
under control with *one* software.

The SAS® solution alerts you to problems before users sound the alarm. And gives you consistent control over your full range of IT services: computers, applications, networks...phones, fax systems...the Web, E-mail...data warehouses...*any* application that provides time-sensitive logs.

Minimize disasters, maximize IT effectiveness

Respond proactively, not reactively

Visit us at www.sas.com/ITrescue for a free **Guide to Panic-Free IT Services**



www.sas.com/ITrescue E-mail: cw@sas.com 919.677.8200

In Canada phone 1 800 363 8397 SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration. Other brand and product names are trademarks of their respective companies.
Copyright © 1999 by SAS Institute Inc. 19757

OPENVIEW FORUM INTERNATIONAL
INDEPENDENT USERS GROUP



INVITES YOU TO...

The OpenView Forum and Universe Conference
April 12-16, Boston



LEARN HOW OPENVIEW CAN WORK FOR YOU. RIGHT NOW.

Network with over 2000 OpenView customers at executive seminars, technical and hands-on lab sessions, test-drive sessions, and the biggest technology showcase ever! Discover worldwide OpenView solutions and the latest industry trends with a starring line-up of OpenView experts from around the globe. **SPECIAL GUEST!** World's #1 Comedian **BILL COSBY** will perform **LIVE** on Tuesday, April 13th. Don't miss out...register today!



REGISTER BY MARCH 1 FOR EARLY BIRD SAVINGS

US - 800.538.6680, outside the US - 415.975.3782

www.openview99.com

TECHNOLOGY

SQL 7.0 SQUEEZE?

SAP has cast its lot with Microsoft's SQL Server 7.0, but analysts warn that limitations of the underlying operating system, Windows NT, will cap the size of ERP applications running on the database. ▶ 62

STOP JUST ADDING SERVERS

With hungry apps like ERP and E-commerce consuming resources, IT increases its focus on a variety of capacity planning tools. ▶ 64

UPGRADE TO SMS

A new version of Microsoft's Systems Management Server lets IT choose which groups software are pushed down to, instead of being locked into an entire domain or single machines. ▶ 62

FRANKLY SPEAKING

Our fancy metrics aren't working, Frank Hayes writes. To find out how your IT projects are doing, apply Alan Turing's simple rule: Do half the users think your systems work? ▶ 74

XML SERVERS

With XML use expected to skyrocket, vendors are starting to ship stand-alone XML servers. The goal is to make it easier for IT managers to exchange data with their business partners. ▶ 63

NORTEL NET MANAGEMENT

New Nortel add-ons are aimed at helping network managers manage WAN and LAN devices from one desktop and to bill-back for network services. ▶ 65

CUT THE CORD

Wireless Internet mail can be a liberating experience for traveling executives: no phone lines, no access code. But the trade-offs are cost, complexity and finding the appropriate wireless coverage area. We look at options from AT&T, Ericsson and Metricom. ▶ 68

FLASHBACK: USERS, UNITE!

It didn't take long for the first IBM computer users to find each other. In 1955, Share became the first users' group. ▶ 69

VPN COMEBACK?

Internet-based virtual private networks stalled last year, but more solid standards, better security and an attractive price may kick-start them in '99. ▶ 65

CAROLINA GREEN

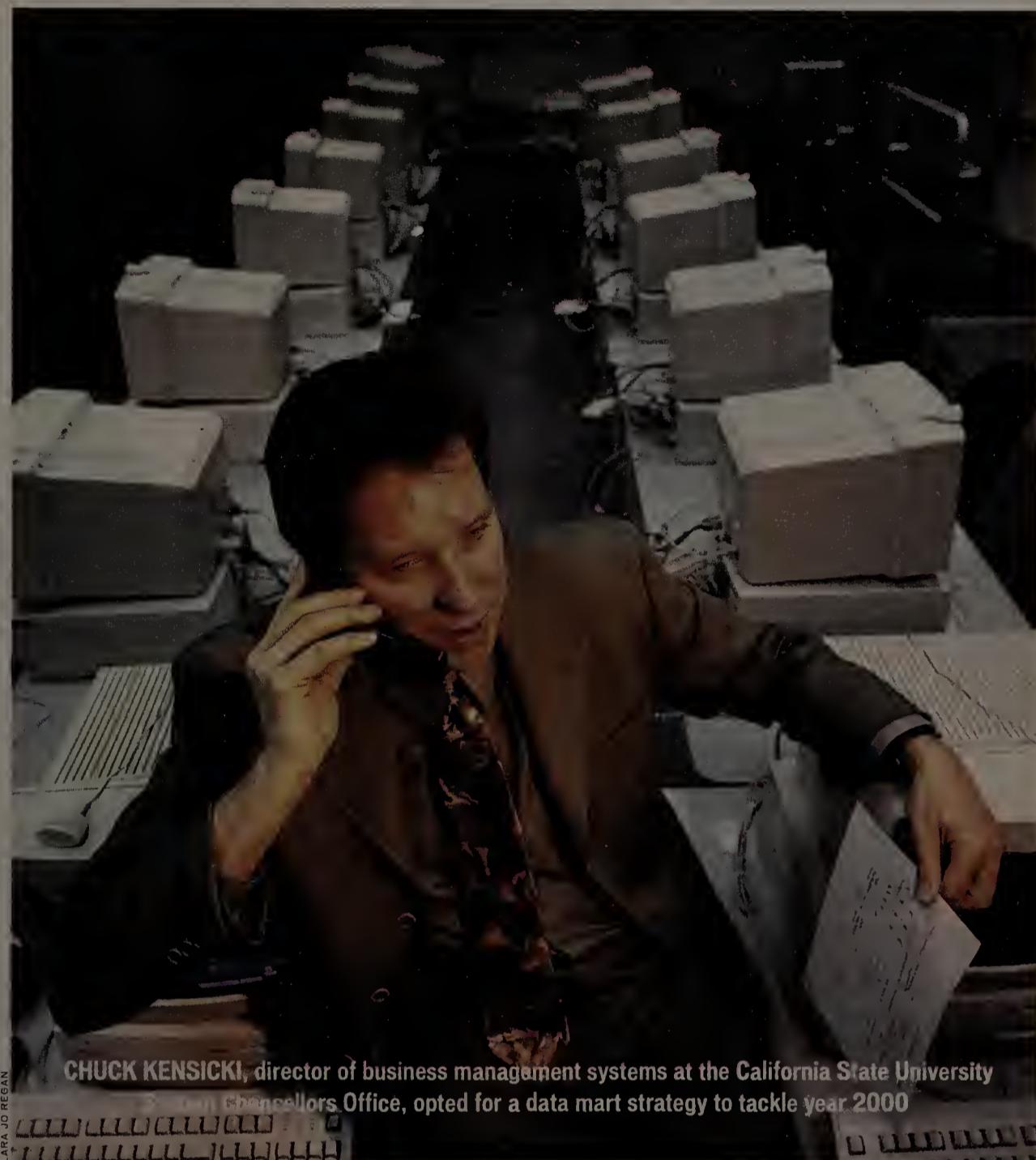
There's a lot more to North Carolina than tobacco and NASCAR. The Raleigh-Durham area, Winston-Salem and Charlotte have plenty of IT work, and employers in those areas are ratcheting up their pay scales. ▶ 82

QUICKSTUDY: A LOOK AT MPP

Divide and conquer: That's the idea behind massively parallel processing (MPP), which breaks up computing tasks among hundreds or even thousands of processors. We explain the various flavors of MPP and show how an MPP system handles a typical business query. ▶ 70

MORE

Hardware	64
Networks	65
Software	62



CHUCK KENSICKI, director of business management systems at the California State University, opted for a data mart strategy to tackle year 2000

Y2K: WHAT TO DO IF YOU'RE BEHIND

IT'S NOT QUITE TIME to kiss your you-know-what goodbye, but it is time for aggressive year 2000 triage. Consultants and users alike say you need to identify your most critical systems and fix them as quickly as possible, letting everything else slide. There are some other emergency shortcuts you can try — but they're long shots.

76

BRIEFS

Building on ERP

How do you plan to extend your enterprise resource planning system?

70% Give users access to real-time data

64% Integrate with E-commerce systems

56% Link to systems at suppliers

44% Link to systems at customers

44% Integrate with decision-support systems

Base: 270 senior IT executives surveyed via interviews, discussion groups and an online questionnaire. Research was jointly funded by PeopleSoft Inc. and Sun Microsystems Inc.

SOURCE: CAMBRIDGE TECHNOLOGY PARTNERS INC., CAMBRIDGE, MASS.

R/3-D&B Links

SAP AG last week announced a pair of interfaces that let users of its R/3 enterprise resource planning package access The Dun & Bradstreet Corp.'s database of credit and purchasing information. The jointly written interfaces are due for general release next month.

The links cost \$32,600 each and support accounts payable and accounts receivable applications. www.sap.com

CyberCop Scanner Now Runs on Linux

Network Associates Inc. has announced a version of its CyberCop Scanner for the Linux operating system. The product is a component of Net Tools Secure, which the Santa Clara, Calif., vendor sells for \$56 per node for 5,000 users. www.nai.com

Interleaf Updates Publishing Suite

Interleaf Inc. has announced Interleaf 7, the latest version of its electronic-content publishing tool. Interleaf 7 supports more formats than previous versions, according to the Waltham, Mass., company.

Pricing starts at \$1,395; the upgrade is free for existing customers. www.interleaf.com

2 MICROSOFT UPGRADES TARGET THE ENTERPRISE

Scalability of SQL Server 7.0 for ERP apps questioned

BY STEWART DECK

RECENT announcements that enterprise resource planning (ERP) software packages like SAP AG's R/3 now can run on SQL Server 7.0 indicate ERP vendors believe the Microsoft Corp. database is solid enough to handle heavy data loads.

Some early adopters also have shown faith in the database. But analysts said the limits of the underlying operating system, Windows NT, will restrict SQL Server 7.0 to ERP installations involving no more than 1,000 users.

Pennzoil-Quaker State Co. in Houston is one of the handful of companies that have worked with Microsoft to build an SAP R/3 ERP system on SQL Server 7.0. Pennzoil CIO Britt Mayo said the system has been "stable and reliable" and added that users have seen "substantial" improvements in query response time.

Eye Care Centers of America Inc., the third-largest optical retailer in the U.S., has found that the database and Windows NT suit its needs well. Eye Care runs a financial accounting application from Great Plains Software Inc. on

top of the Microsoft database.

Tony Moos, director of corporate systems at San Antonio-based Eye Care, said SQL Server 7.0 will take care of "any future plans that we can foresee. Even if we doubled our system requirements today, we'd be well within its limits."

Al Hilwa, an analyst at Gartner Group Inc. in Stamford, Conn., said SQL 7.0 can handle up to 500 concurrent users, which would be similar to an SAP 1,000-user system, which no more than 500 people would probably use at once.

"Microsoft has done a good job scaling SQL Server for a well-designed application like SAP," Hilwa said, but it can't reach the 2,000-user limit of a Unix-based system running an Oracle database.

Richard Finkelstein, a Chicago-based analyst at Performance Computing Inc., said a midsize system is fine for the database, but the NT operating system it runs on is the drawback.

NT was "designed to make money from desktops, not to run mission-critical applications," he said. "Unless companies are willing to cut back on the kind of business they want to do, they'd better stay away from it. Microsoft can't scale NT to compete with Unix and at the same time support the desktop. It's like IBM trying to make a desktop version of MVS — it just doesn't work."

To the Limit

Approximate usage limits of leading databases

DATABASE	USAGE LIMIT
SQL Server 7.0	500 concurrent users
ERP systems running on Oracle8	1,800 concurrent users
IBM's DB2 running on a mainframe	5,000 concurrent users

SOURCE: INTERVIEWS WITH ANALYSTS

SMS 2.0 goal is to improve inventory, apps distribution

BY SHARON GAUDIN

CORPORATE USERS are betting that Microsoft Corp.'s new version of its Systems Management Server will make it easier to distribute software and inventory their systems.

SMS 2.0, which is shipping now, was designed to improve on both Version 1.2's software distribution capabilities and its software and hardware inventory performance.

SMS, a part of Microsoft's BackOffice suite, is used to manage Windows-based software and related hardware — distributing software, taking

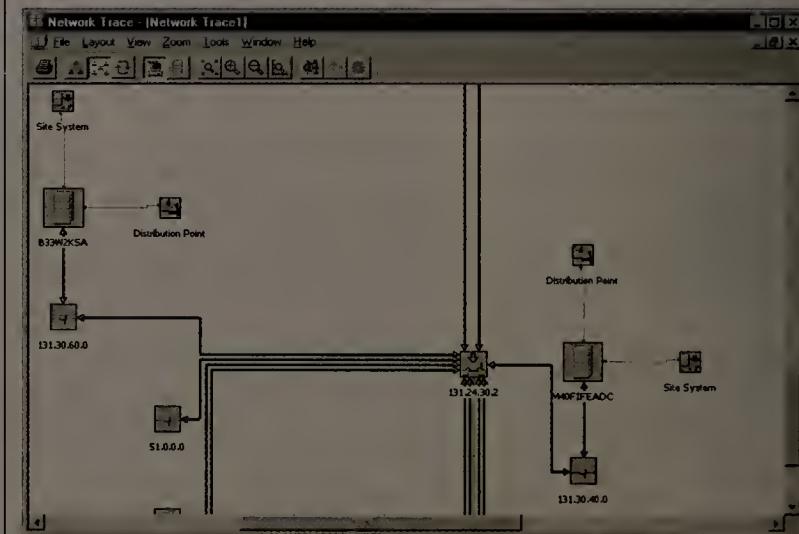
TCP/IP network segments instead of only to a machine or domain.

And the spokesman said IT departments that use Version 2.0 can choose if users must accept the software immediately, if they have a span of time to accept it or if they can choose not to accept it at all.

"We really need it to help us roll out software," said Scannello, who added that he plans to move his 8,000 client licenses from Version 1.2 to Version 2.0 during the next few months.

"Last year, we did 500,000 independent updates. For the most part, before SMS, things just didn't get done. If you went to somebody's workstation, you'd find a version a few years old," he said.

Patrick Dryden, an analyst at Giga Information Group Inc.



SMS 2.0 GIVES IT administrators the ability to fine-tune software distribution to individual users, groups of users or TCP/IP network segments instead of only to a machine or domain

inventory, metering and performing automated audits.

"There have been some limitations with [Version] 1.2," said John Scannello, director of information technology planning at Consolidated Edison Company of New York Inc. "It just didn't drill down deep enough in terms of inventory ... and it wasn't granular enough for distribution. This version should solve some of those problems for us."

A Microsoft spokesman said Version 2.0 gives IT administrators the ability to fine-tune software distribution to individual users, groups of users or

in Austin, Texas, said users should see a marked improvement in Version 2.0.

"[Version] 1.2 had a bad rep," Dryden said. "An administrator had to know SQL Server, because that was the repository. And the software distribution was awkward to use, requiring a lot of granular attention."

Dryden said Microsoft is catching up with vendors such as Network Associates Inc. in Santa Clara, Calif., and Platinum Technology Inc. in Oakbrook Terrace, Ill., which have long made distribution and inventory easier to manage, giving IT more control.

Data Warehouse Project Starts Simply

Lexis-Nexis avoids complexity quagmire

BY STEWART DECK

Lexis-Nexis was determined not to fall into the swamp that a data warehouse project can become.

The Dayton, Ohio-based provider of legal and news documents wanted to know more about its 1.7 million subscribers. But the company's information technology staff knew what a quagmire a warehouse could turn into, as different parts of the business argued over data definitions and the complex jobs of scrubbing and importing data.

So the company started the project with simple goals and had the first working pieces in place in three months.

"Our subscribers will grow geometrically with Web-based access," explained Keith Hawk, vice president of sales for the Nexis division of Lexis-Nexis (itself a division of Reed Elsevier Inc.). "And therefore our business model is changing from selling primarily into or-

ganizations to selling to individual users."

To track those new customers, Lexis-Nexis needed to replace its decision-support system — a thicket of legacy systems and an old IBM DB2 database — with new tools and a data warehouse that will let 475 salespeople and in-house analysts look up daily detailed customer usage data.

Heavy Machinery

At the core of this new system — which will be fully in place by June — is an NCR Corp. Teradata parallel database running on a two-node, NCR WorldMark 4700 server with 364G bytes of storage.

"We are taking our reporting system and building it as a customer-centric warehouse for analyzing customer information so that we can better understand and predict customers' needs," said Pam Dunsby, vice president of information systems at Lexis-Nexis.

"This gives us a scalable platform with better delineation between our operational and analytical environments and gives us a good place to start," Dunsby said.

The type of data the company's salespeople will be sorting through will include subscriber usage patterns — what they look up, what sources they use most often, when they're connecting — along with customer contract details.

To get to that data, Lexis-Nexis chose decision-support tools from MicroStrategy Inc.

Field sales representatives who need ad hoc reporting capabilities will use MicroStrategy DSS WebPE and WebSE, while power users will use DSS Agent to closely analyze and model business processes.

Mitch Kramer, an analyst at Patricia Seybold Group in Boston, said data warehouses such as Lexis-Nexis' benefit organizations by consolidating customer information in a single place where it can be combed through for pattern analysis. ▀



LEXIS-NEXIS' PAM DUNSKY
took a modular approach to building a data warehouse

TED RICE

BLUESTONE TO SHIP XML SERVER, TOOL KIT

Vendor hopes to make data-tagging language easier to use

BY CAROL SLIWA

WITH USE of the Extensible Markup Language (XML) expected to skyrocket this year, Bluestone Software Inc. has shipped one of the first stand-alone XML servers that make it easier for information technology managers to exchange data with other companies.

Bluestone's new \$2,995 XML Server shipped earlier this month.

The Mount Laurel, N.J., software maker also plans to release in April its \$99 Visual-XML tool kit that will help companies write Java applications that can extract data from databases or applications while the application is run-

ning — as opposed to requiring that the data be stored first in XML.

XML helps companies categorize data in a structured way, making the information easier to search, analyze and transfer. For example, one company might want to tag brand and

price information to send into another company's order-entry system without the need for cumbersome and expensive electronic data interchange (EDI) systems.

An XML Server, such as Bluestone's new offering or WebMethods Inc.'s B2B, can

help convert data into the format that the back-end system needs and deliver it in a more efficient manner than HTML-, paper- or EDI-based systems.

Zona Research Inc. in Redwood City, Calif., predicts that XML usage will explode this year. Products that support XML have been slowly emerging in the market.

XML is expected to prove useful to customers such as Automotive Resources International (ARI), also in Mount Laurel, which leases fleets of cars and trucks. If a customer wants to know the vehicle numbers and mileage on trucks it is leasing, and at another time also wants to know the trucks' locations, that data can be added relatively easily using XML.

"It reduces programming cost," said Richard Hays, an ARI database administrator. Right now, the company communicates with customers via paper, and to a lesser degree, EDI, he said.

Because Bluestone's XML server and tool kit are written

in Java, they will run on any platform, including Windows NT, major Unix platforms, Linux and IBM's AS/400 and mainframes, company officials said.

An XML server, such as Bluestone's stand-alone offering, can be a cheaper alternative to expensive application servers that support XML, said Martin Marshall, an analyst at Zona Research.

Bluestone's dynamic middleware-oriented approach contrasts with the repository-based strategy of companies such as Object Design Inc., whose Excelon data server caches and manages data that already has been translated into XML.

"We don't really want to get in the business of telling Oracle customers how to convert their data," said Coco Jaenicke, an Object Design product marketing manager. ▀

Commerce XML Standards Effort Set

More than 40 vendor and user companies last week announced plans to finalize the Commerce Extensible Markup Language (CXML), a subset of XML that will define standard sets of data for Internet-based electronic commerce.

A simpler, more lightweight version of electronic data interchange, CXML's data tags and first production prototype will be released for public review on March 3 and sent to a standards body within six months, said Paul Touw, vice president of corporate strategies at Ariba Inc., the Sunnyvale, Calif.-based software vendor that's leading the CXML movement.

Several companies plan to release products that conform to CXML.

— Carol Sliwa

MOREONLINE

For resources, an FAQ, articles, specifications and organizations related to XML, visit our Web site.
www.computerworld.com/more

BRIEFS**A Deeper Shade Of Blue**

IBM has announced an RS/6000 SP system based on its 64-bit Power3 microprocessor. According to IBM, the chip delivers double the number-crunching capabilities of its predecessor — the Power2 chip that powered Deep Blue, the chess-playing supercomputer that beat world champion Garry Kasparov in 1997. www.ibm.com

Storage Network Switch

Vixel Corp. has released the Vixel 8100, an eight-port Fibre Channel switch for storage networks. According to the Bothell, Wash., company, the switch delivers 200M bit/sec., full-duplex speed from any port to any other port. Configuration and monitoring software also is included.

The 8100 is set to ship in April for \$8,495. www.vixel.com

Fujitsu Notebook

Fujitsu PC Corp. has announced LifeBook E370, a notebook with dual multifunction bays, which let users hot-swap devices and batteries. According to the Milpitas, Calif., company, the product includes a 366-MHz Pentium II processor from Intel Corp., 64M bytes of RAM, a 56K bit/sec. modem and a 13.3-in. display.

It comes with a 6.4G-byte hard drive and a removable Zip drive from Iomega Corp.

LifeBook E370 costs \$3,099. www.fujitsupc.com

DG Ships New Aviion Server

Data General Corp. is now shipping the Aviion AV 3704R, a rack-mount server designed for high availability. The server can include up to four 450-MHz Pentium II Xeon processors from Intel Corp. and 4G bytes of memory. According to the Westboro, Mass., company, up to nine of the quad-processor systems can be stacked in a single cabinet.

Pricing starts at \$7,500. www.dg.com

CAPACITY PLANNING MORE VITAL THAN EVER

Flood of data prods FedEx, other companies to improve estimates

BY JAIKUMAR VIJAYAN

THE GROWING popularity of online commerce and enterprise resource planning applications are putting greater pressure than ever on information technology organizations to accurately estimate system needs.

The tendency of these applications to quickly saturate server and network resources could mire companies in an endless cycle of upgrades and migrations if proper capacity planning isn't undertaken, users and analysts warned.

Server and network capacity planning gives users a way to predict the resources needed

to run a particular application optimally and how much headroom is needed for growth.

When done right, it gives administrators a way to answer capacity questions relating to disks, memory, PCs and the network.

Without it, performance slowdowns caused by overtaxed systems could end up hurting companies big-time, said Steve McKown, director of information technology at specialty tea maker Celestial Seasonings Inc. in Denver.

The company is trying to move some of its catalog business to the Web. It uses capacity planning tools to figure out how many online transactions its server and networks can

handle without performance degradation.

"The lead time to enhance your infrastructure from a capacity standpoint could take weeks," McKown said. In the meantime, "there is just too much business opportunity you stand to lose" because of poor advance planning, he added.

Online stock traders offer another example of the need for adequate capacity. The recent spikes in online traffic — and their impact on service quality — resulted in end-user complaints to the Securities and Exchange Commission rising 330% from September 1997 to September 1998. As a result, online trading firms are busy ramping up capacity [CW, Feb. 8].

Plan, Plan, Plan

Why you may need capacity planning:

- It reduces the constant need for upgrades
- It lets you better use idle capacity
- It allows better management of hardware

manded by some of its applications, Glisan said.

For example, one application requires the company to store data on disk drives for 18 months before rolling it to offline jukeboxes. That volume has steadily increased as FedEx's shipping volumes have risen.

Capacity tools let planners decide whether storage systems need to be upgraded during those 18 months, Glisan said. ▀

StorageTek Ships Tape Drive For Doing High-End Backup

Runs on mainframe, Unix, NT platforms

BY NANCY DILLON

Though about six months late, Storage Technology Corp. has begun to ship its next-generation tape drive, the 9840.

The new, 20G-byte drive is targeted at demanding backup environments and near-online applications such as imaging, document archiving and video. Its primary competition is IBM's Magstar line.

In 1997, the Cleveland Clinic replaced a large cache of offline optical storage with a tape archive based on StorageTek's Redwood tape. The clinic now is migrating that 5T-byte archive to the faster 9840 technology, which offers a 10M byte/sec. data rate and tape midpoint loading.

"Our current access time [with Redwood] is 100 seconds per request," said Robert Cecil, network director for the clinic's Department of Radiology. "We expect this to drop to 20

seconds with the 9840."

The 9840 works with mainframe, Unix and NT platforms. With maximum compression, each 9840 tape can hold 80G bytes. But the drive's biggest drawback is its incompatibility with existing standard media such as 3490 tapes. Pricing starts at \$27,000 per drive. ▀

When You Need It

Shipping giant Federal Express also has seen growth that required capacity planning. "Capacity planning is a pretty big deal for us now because of the amount of data we have to handle," said Ann Glisan, manager of systems development

3COM BIGPICTURE PHONE

3COM CORP.'S Bigpicture Video Phone includes client-based software for point-to-point videoconferencing, multipoint chat and interactive cybercasting, according to the Santa Clara, Calif., vendor.

It also comes bundled with Microsoft Corp.'s NetMeeting 2.1 videoconferencing software for point-to-point video calls and application sharing. The phone costs \$159.95. www.3com.com



at parent company FDX Corp.'s Federal Express data center in Colorado Springs, Colo.

At Celestial Seasonings, planners first test a small version of the application and use predictive tools to see whether its systems can handle the workload of a new application, McKown said.

Some tools for this kind of capacity planning — such as consistently tracking CPU utilization — are available at the operating system level itself.

More predictive technologies and configuration services are available from several vendors, including system makers such as Hewlett-Packard Co.

and IBM; and tool vendors such as Bluecurve Inc. in Oakland, Calif., Landmark Systems Corp. in Vienna, Va., and Candle Corp. in Santa Monica, Calif.

At FedEx, such tools help the company handle the vast storage requirements de-

Bay Management Tools Cover WANs, Billing

Charge-back helps IT managers account for equipment and network use

BY BOB WALLACE

LAN vendor Bay Networks Inc. last week broadened its network management capabilities with add-ons for managing wide-area network equipment from parent company Nortel Inc. in Toronto and for collecting network data for bill-back purposes.

The first add-on, Open Man-

agement Systems 3.1 for Passport (OMS 3.1), lets network managers configure, monitor and manage WAN devices — along with LAN equipment — from one desktop.

The second add-on, Optivity Service Accounting 1.0 (OSA), helps them charge for network usage.

OMS 3.1 is the first major

step toward enabling network managers to control Bay Networks' equipment such as switches and routers as well as Nortel's Passport line of WAN switching equipment.

One analyst predicted that OSA will be a big hit with information technology departments.

"The ability to charge back for use across the LAN and the WAN is definitely important because of drivers like electronic commerce," said Elizabeth Rainge, an analyst at In-

ternational Data Corp. in Framingham, Mass. "IT managers need to be able to account for network usage."

Bay Networks is "leading the pack" with the announcement and its aggressive approach to expanding network management beyond just managing boxes, said Chris Nicoll, an analyst at Current Analysis in Sterling, Va.

OMS 3.1 and OSA will ship next month for \$12,000 and \$30,000, respectively. ▶

MOREONLINE

For links to network management resources, visit our Web site.
www.computerworld.com/more

BRIEFS

Xylan Adds Switches

Xylan Corp. last week announced OmniStack 4024, a family of four small 10M/100M bit/sec. switches that support policy-based management, security and, with three of the models, Gigabit Ethernet uplinks. All four can bond four Fast Ethernet ports together to form a 100M bit/sec. megapipe, according to the Calabasas, Calif., vendor. Pricing starts at \$3,450. www.xylan.com

PRICE, STANDARDS COULD BOOST VIRTUAL NET USE

Private-net alternatives didn't live up to hype in '98

BY BOB WALLACE

ALTHOUGH Internet virtual private networks (VPN) failed to live up to the hype last year, users and analysts predict steady growth for the private company network alternatives.

An Internet VPN is a network that carries data packets — typically but not always encrypted — through virtual tunnels across the Internet. VPNs have been pitched as a far less-expensive alternative to dedicated private-line networks. But product immaturity, an absence of technical standards and a dearth of education have hamstrung their deployment.

VPN products in general have been immature on scalability, functionality and robustness, according to Dan Merriman, an analyst at Giga Information Group Inc. in Cambridge, Mass. For example, some VPN hardware doesn't support enough remote users and doesn't include routing and firewall functionality in a single box. That forces users to cobble together multiple devices at each site, which in turn complicates management.

Such shortcomings have caused concern, Merriman said, because "we're dealing with business-critical applica-

If security is adequate on the public Internet, you have to reassess why you're staying with a private net.

ED LEARD, IS GENERAL MANAGER, YAMAHA CORPORATION OF AMERICA



tions with important security and performance implications."

Although last year was clearly a stumble, several developments could make this year a better one for VPNs. For one thing, deployment could accelerate if service providers and equipment vendors pitch in.

"Vendors and service providers have a huge amount of work to do this year educating users on VPNs," said Eric Zines, VPN analyst at Tele-Choice Inc. in Boston. "We're finding that 60% to 70% of IT managers say they don't know anywhere near enough about [VPN] products and technologies."

"By the end of last year, we finally had [draft] standards for security and encryption that vendors could build to, which means I can choose to buy equipment from any or from multiple vendors," said Jim Fey, director of strategic technologies at PMI Mortgage Co. in San Francisco. Key VPN standards on tap are IPSec, a specification for security, and Internet Key Exchange, a specification covering encryption. Both are being advanced within the Internet Engineering Task Force (IETF).

On the pricing front, users stand to save big by replacing their private networks with VPNs, according to experts.

"VPNs are typically 50% to 70% cheaper than private lines, 20% to 60% cheaper than frame relay and over 90% cheaper than international private lines," Zines said.

One manager said security for Internet VPNs has come a

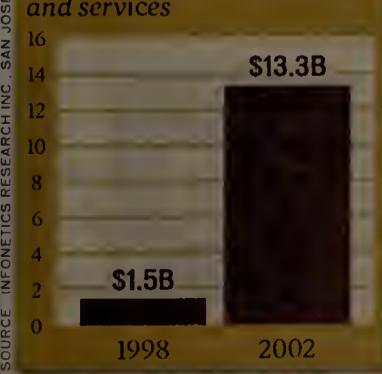
long way in a short time, thanks in part to the IETF specifications. "Security isn't bulletproof, but it's pretty safe now," said Ed Leard, information systems general manager at Yamaha Corporation of America in Buena Park, Calif. "If security is adequate on the public Internet, you have to reassess why you're staying with a private net."

Users looking to cut communication costs should take a look at Internet VPNs but should be mindful that costs are likely to come down as service providers look to sell more of their network bandwidth. And before pushing lifeblood application data over the Internet, they should push their provider to sign service-level agreements covering performance. ▶

SNAPSHOT

Wide-Open WANs

Sales projections of WAN-based voice/data equipment and services



Win Security Tool

WebTrends Corp. has released WebTrends Security Analyzer, software that checks services, programs and permissions on Windows NT, 95 and 98 and TCP/IP systems, including E-mail servers and clients, Web servers, Web browsers and FTP servers. It also offers regularly scheduled reports and recommends fixes, according to the Portland, Ore., company. Pricing ranges from \$1,499 to \$4,999. www.webtrends.com

VPN Tool Upgrade

Data Fellows is set to ship F-Secure VPN+ 4.0, a new version of its virtual private networking software, this month. The Windows-based tool adds support for dial-up and Dynamic Host Configuration Protocol addressing with Windows 95 and NT 4.0. Security settings are centrally managed and status information is accessible with a Web browser, according to the San Jose, Calif., company. Pricing ranges from \$59 per user for a 100-user license to \$4,990 for an enterprise gateway. www.datafellows.com

File Sync Software

Software Pursuits Inc. has announced SureSync Server 2.1, software for replication, synchronization and mirroring files between servers over a LAN or WAN. The new version includes the ability to automate ongoing synchronizations and run synchronizations at remote servers, according to the San Mateo, Calif., company. The software costs \$500 per Windows server. www.softwarepursuits.com

Kelly Fights E-Mail Bugs at the Server

BY ROBERTA FUSARO

Troy, Mich.-based employment agency Kelly Services Inc. is using server-based fil-

tering technology to crush E-mail bugs — and has found some early success.

Kelly has about 5,000 em-

ployees. About 60% of the company uses Lotus Notes; about 40% uses Internet mail.

When Kelly adopted Lotus

Notes, many users gained their first access to external E-mail. As the system was rolled out, the number of E-mail messages grew exponentially, "which gave us greater exposure to newer strains of viruses," said

Mike Littleton, a network systems engineer and leader of Kelly Services' antivirus project — a team dedicated to tracking E-mail bugs. Kelly now transmits 500,000 to 1 million messages per month globally, he said.

Late in 1997, the company noticed it had contracted "Imposter E," a Word macro virus, and tried to fight it off desktop-by-desktop. But by July of last year, the number of alerts had increased significantly.

So Kelly adopted Trend Micro Inc.'s server-based ScanMail product. With ScanMail, desktops could be monitored from a central location and software/virus pattern updates could be done automatically. Visits to each desktop weren't necessary, support analyst Dave Pfleiger said.

Kelly deployed ScanMail in the fall and had fewer virus alerts in the fourth quarter of 1998 than ever before, officials said.

Kelly considered products from Network Associates Inc. and Symantec Corp. but chose ScanMail for Lotus Notes because it fit best with the company's Notes infrastructure, said Dale Valitutti, Kelly's Notes administrator.

The server-based model lets administrators track alerts back to an individual user so they can isolate virus hot spots, Littleton said. And because Kelly can configure every workstation in one shot, that guarantees antivirus consistency, he said.

Oppenheimer Security Funds in New York is using WorldTalk Inc.'s WorldSecure Server to protect its messaging system. And Procter & Gamble Co. is using Tally Systems Inc.'s MailCheck, a probe-based E-mail management system.

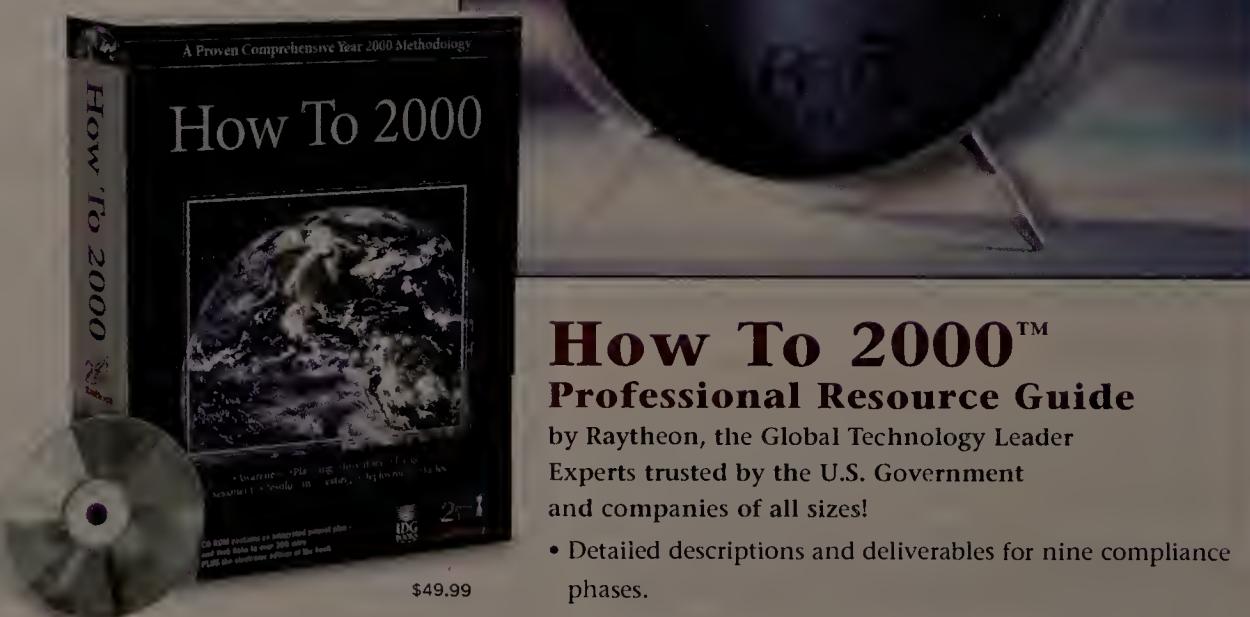
That's because the threat of virus infection through E-mail is greater today than ever before, users and analysts said.

The way to defend is to deal with the points where E-mail enters the network, said Joe Judge, a consultant at PriceWaterhouseCoopers in Boston. That means applying controls at firewalls, gateways, mail stores and file and Web servers, he said.

January 1, 2000

The Alarm is Set... Are You?

**Wake Up—
Address Your
Year 2000
Compliance
Problem Today!**



The IDG Books Worldwide logo is a trademark under exclusive license to IDG Books Worldwide, Inc., from International Data Group, Inc. All other trademarks are the property of their respective owners.

How To 2000™ Professional Resource Guide

by Raytheon, the Global Technology Leader
Experts trusted by the U.S. Government
and companies of all sizes!

- Detailed descriptions and deliverables for nine compliance phases.
- Full discussions of the specific tasks including resources, inputs, and sequencing information.
- Parameters for monitoring the progress of each task with a checklist of success factors.
- Strategies for assessing and mitigating risks.
- CD contains project database, integrated project plan, presentations, Web links to over 300 sites and electronic version of the book.

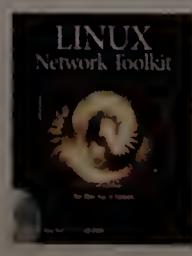
Available wherever books are sold
or call 800-762-2974!

For corporate volume discounts call 800-434-3422.

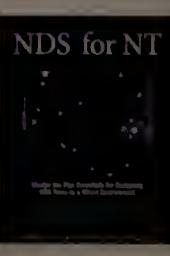


www.idgbooks.com

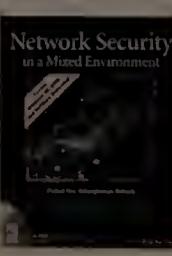
Also from
IDG Books Worldwide



\$49.99



\$39.99



\$39.99



\$39.99

MOREONLINE

For links to E-mail virus resources, visit our Web site.

www.computerworld.com/more

TECHNOLOGY

BRIEFS

Fujitsu, Toshiba Team on Fast DRAM

Fujitsu Ltd. and Toshiba Corp. last week said they will jointly develop memory chips that could operate two to three times faster than today's dynamic RAM chips, which are used as the main memory in PCs. The Tokyo-based companies plan to ship samples of 64M-, 128M- and 256M-bit Fast Cycle RAM chips later this year.

SmartDB Templates For PeopleSoft Apps

SmartDB Corp. in Palo Alto, Calif., last week released a set of application integration templates that support PeopleSoft Inc.'s financial and human resources software.

The templates work with SmartDB's Workbench 4.1 data transformation engine. Pricing starts at \$47,500.

www.smartdb.com

Motive Revamps Duet

Austin, Texas-based Motive Communications Inc. is shipping a new version of Motive Duet, its support management software aimed at helping end users solve their own computer problems.

Available now, the Motive Duet Self-Service Engine starts at \$75,000.

www.motive.com

Doc Manager For Exchange

Eastman Software Inc. in Billerica, Mass., is now shipping Version 1.1 of its Document Manager for Microsoft Exchange. The product includes enhanced version control, document locking and audit trails.

It costs \$149 for new users; a free license upgrade is available to users of Version 1.0.

www.eastmansoftware.com

Windows Apps For Manufacturing

Danish vendor Navision Software U.S. Inc. has released Windows-based manufacturing applications

aimed at midsize users. Navision Manufacturing is integrated with a set of financial applications sold by the company, which has U.S. headquarters in Norcross, Ga.

Pricing starts at \$35,000.

www.navision.com

Messaging Tool Bows

Software Technologies Corp., a Monrovia, Calif., developer of application integration tools, last week announced software that combines publish-and-subscribe messaging

and multicasting capabilities. Data-Cast is aimed at uses such as feeding stock-price data to large groups of traders at once, the firm said.

Pricing ranges from \$50,000 to \$125,000.

www.stc.com

Sybase Scanner

Internet Security Systems Inc. has announced Database Scanner 2.0 for Sybase Inc.'s Adaptive Server Enterprise. It costs \$995 per database server. www.iss.net

*Confident
about your
Year 2000
conversion?*

*Let us put
your mind
at ease*

We can assess your business risks and evaluate the exposure. There's still time to benefit from our many successful remediations and end-to-end testing engagements. As a leading full-service global provider of IT services, we have award-winning methodologies and the experience to meet your Y2K challenge. Having doubts about your conversion? Contact us.



CBSI
sm

Complete Business Solutions, Inc.

<http://www.cbsinc.com>

1-800
688-
2088

Hold the Phone (Line)

BY DAVID STROM

WIRESLESS INTERNET MAIL can be a liberating experience for traveling executives. No need to plug in to a phone line. No need to mess around with your hotel's phone system. And no need to worry that you don't have the right access code, phone number or the time to search for a convenient RJ-11 phone jack when you're at an airport or on the road. But the trade-offs are cost, complexity and finding the appropriate wireless coverage area.

Of the three trade-offs, understanding the radio coverage areas and networks in place around the country is the most vexing.

Some systems don't work in every city: For example, Metricom Inc.'s service is available in three metropolitan areas, while AT&T Corp.'s isn't available in Los Angeles.

Others don't cover the far-flung suburbs yet.

Most of the major service providers have maps describing coverage on their Web sites, but actual performance can vary tremendously depending on geography, obstacles such as concrete walls and metal floors, and your own particular elevation at the time of use.

Wireless E-mail can cost at least double that of the wired version, to be sure. There is a dizzying array of plans and service options; some of which require lots of scrutiny and clarification.

Some plans charge by the minute, others by the number of characters transmitted. Still others offer unlimited pricing plans.

Wireless also is more complex than wired: You'll need to have several different pieces of hardware and software, such as a wireless modem or cell phone with a modem attachment, a cable that connects your computer to the modem

and the necessary software and configuration parameters to make it all work.

Because of its complexity, you should test it in your office carefully before hitting the road.

You'll also need a standard Post Office Protocol (POP) Internet E-mail account to use these products.

If you currently get your corporate E-mail through Lotus Development Corp. Notes or Microsoft Corp. Exchange servers, they won't work.

I tried two phone-based systems for providing wireless, Internet-based E-mail.

The phones have the advantage of being portable and relatively easy to use — and they can do double duty, taking wireless voice calls as well as data.

There are other wireless systems, including the newly announced (but not yet available) Palm VII from 3Com Corp., but the ones I reviewed are the only three available for a wide variety of computers, personal digital assistants and laptops that work across most of the country. ▀

Strom is a freelance reviewer in Port Washington, N.Y.

MOREONLINE

For more wireless Internet mail buying tips, visit our Web site: www.computerworld.com/more

AT&T Wireless Services

AT&T PocketNet Service
Samsung Duette Phone (\$99)

Unwired Planet Browser and Infinite Technologies Mail and News.com mail reader
Typical monthly price: \$30, plus voice calls billed separately
www.attws.com/general/pocketnet

It looks like a cellular phone with a large, four-line display, but it actually has its own TCP/IP address and Web browser built in. I found this phone to be indispensable over the past year; I have managed to read our E-mail without having to carry a laptop around the country. The service is called AT&T PocketNet. AT&T Wireless Services sells the voice and data services, and you can buy one of two different cell phones that will work with the whole shebang. I have tried both the Samsung Duette and Mitsubishi Mobile Access phones, and prefer the former for its ease of use and four-line screen readability.

The phone connects to my standard POP E-mail account at www.strom.com through the services of Infinite Technologies' Web site (www.mailandnews.com).

Like many others, this site allows you to read your E-mail within a Web browser and has been designed to work with the PocketNet phone. It took minutes to get it set up and working, and the instructions are very clear.

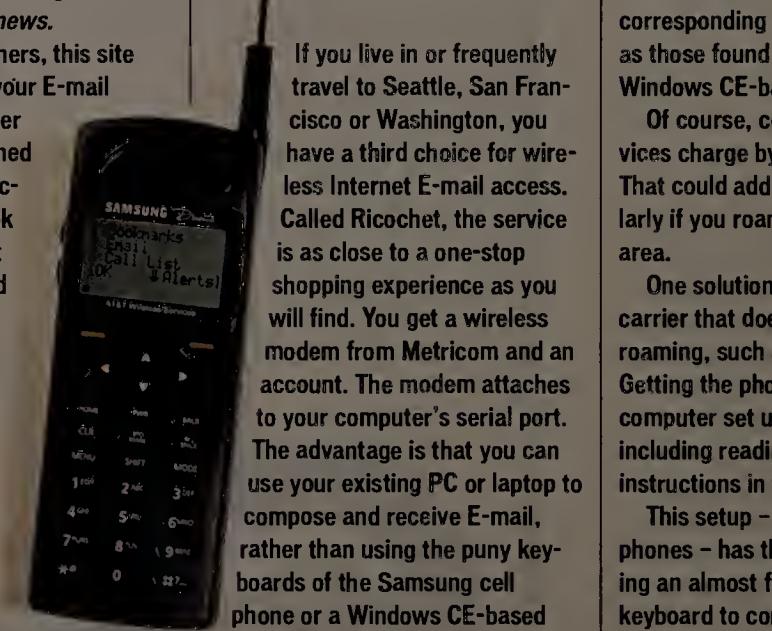
The bad news is that the service isn't available in Los Angeles or Atlanta. Also, AT&T's pricing plan is complex in that you pay separately for voice and data calls. If you want to connect your phone to your laptop, there are additional fees and pricing plans to choose from.



Metricom Inc.

Ricochet service (\$30 per month unlimited Internet access plus initial \$45 fee)

Metricom modem: \$349
www.metricom.com



If you live in or frequently travel to Seattle, San Francisco or Washington, you have a third choice for wireless Internet E-mail access. Called Ricochet, the service is as close to a one-stop shopping experience as you will find. You get a wireless modem from Metricom and an account. The modem attaches to your computer's serial port. The advantage is that you can use your existing PC or laptop to compose and receive E-mail, rather than using the puny keyboards of the Samsung cell phone or a Windows CE-based handheld device. And you pay a single price for all the access you need, rather than trying to decode some complex billing plan — which is what's offered by most cellular phone vendors. But outside of those three areas, you have to make do with a traditional wired connection.

Ericsson Co.

Ericsson CF768 Cellular Phone (purchase price varies, depending on service provider)

Ericsson DI27 Mobile Office Software and Infrared modem (\$279)
Omnipoint Wireless Service (typical monthly service fee: \$45)
<http://mobile.ericsson.com>

Another wireless option is to use cellular phones with modems. This hasn't been easy over the years because each phone requires a special, expensive cable to connect it to a laptop. Also, the number of prices, plans and products is numerous. Ericsson has tried to solve this problem with a special infrared modem about the size of a "C" battery, which snaps on to the end of many of its digital phones. The infrared modem doesn't need any cable to talk to a computer with a corresponding infrared port, such as those found on many laptops and Windows CE-based machines.

Of course, cellular phone services charge by the minute for calls. That could add up quickly — particularly if you roam outside your local area.

One solution is to use a digital carrier that doesn't charge for roaming, such as Omnipoint Corp. Getting the phone, modem and computer set up took about an hour, including reading some confusing instructions in the various manuals.

This setup — unlike the AT&T phones — has the advantage of having an almost full-size QWERTY keyboard to compose messages. ▀

Technology Happenings

Grace Hopper develops Math-Matic, the A-3 compiler.

IBM opens its first data center so customers can test programs before their machines are delivered.

Ralph Cordiner, president of General Electric Co., gives a speech for a congressional committee, saying, "The computer-derived technologies will create new industries and new products that will be a major source of new employment in the coming years."

Sperry Gyroscope merges with Remington Rand Corp. to become Sperry Rand Corp.

NASA and the U.S. military begin to fund major computer research projects.

IBM delivers the first IBM 704, designed by Gene Amdahl.

Computer Usage Co., the first computer software company, is founded by John W. Sheldon and Elmer C. Kubie.

The first artificial intelligence program language, Information Processing Language, is created by John Clifford Shaw, Allen Newell and Herbert A. Simon.

Sperry Rand introduces Univac II, with magnetic core memory.

IBM introduces the IBM 705, with magnetic core memory.

Born in 1955

Tim Berners-Lee

Steve Jobs

 ▲ William Henry Gates III
William Nye — Bill Nye, the Science Guy

Guy Lewis Steele Jr. — computer hacker and author

Other notables

Ford Thunderbird costs \$2,695

Minimum wage is raised to \$1

Best Picture: *Marty*

Admission to Disneyland costs \$1

Weekday price of *The New York Times* is 5 cents

Loaf of bread costs 17 cents

McDonald's hamburger costs 15 cents

The Users Unite

BY MARY BRANDEL

IT DIDN'T take long for the first IBM users to find one another. When there are only 17 of you, with seven in Southern California alone, you're bound to meet. Just two years after the release of IBM's first computer, the 701, those companies formed Share, the first user group in computing history.

Share held its first meeting on Aug. 15, 1955, at Rand Corp., a think tank in Santa Monica, Calif. Its main purpose was to stop reinventing the wheel — at the time, all the 701 users were writing their own utilities and programs. With the impending release of the 704, they faced the giant task of rewriting or porting all those programs to a new machine. So from the very first meeting, the group began to share programming knowledge.

Computerworld spoke with three original members: Frank Wagner, who at the time was group leader for engineering computing at North American Aviation Inc.; Paul Armer, who headed the computer science department at Rand; and Morton Bernstein, an associate mathematician at Rand. Here's what they had to say about Share's early days:

Share's Formation

ARMER: There was an IBM salesman in Santa Monica named Blair Smith. He said, "I've got all these [701 customers] all trying to do the same thing — you guys need to get together to talk about it."

1955

There came into being the Digital Computing Association, also known at the time as the Drunkard's Computing Association because it was a very social group. Then, when the 704 was coming out, there was this meeting at which the idea of forming Share came about.

WAGNER: An IBM speaker came out to give us a preview of the 704. In Los Angeles, we all knew each other well. We

were deplored the fact that all of us were doing a lot of work that was identical. At lunchtime, we said, 'Let's call all the people we know around the country and see if they're willing to form an organization.' So we went into a phone booth and started calling.

First Meeting

WAGNER: The first thing we decided was that we had to set some standards. If we were all going to use the same programs, we all needed to have the same computer configurations. There were probably 10 to 15 standards we discussed, such as utility programs and mathematical functions.

We committed to distribute any programs that would be of value to others. And a lot of ethics were involved. You were not supposed to recruit people from other organizations at a Share meeting. And if you were in the business of selling programs or hardware, you were forbidden to do this at a meeting except at the invitation of Share.

The Mix of Work and Fun

BERNSTEIN: One of the delightful inventions of Share was SCIDs, or Sessions on Common Information Discussion. We managed to arrange for a suite where people could get together after the day's meetings and let their hair down. Companies like Rand were not permitted to spend money on alcoholic beverages. It became an instant tradition. There was always a card game in the corner, but a great deal of information exchange went on.

The Share Grapevine

ARMER: I walked into my office around 9 one morning, and the phone was ringing. It was someone from Share on the East Coast saying, "I understand you had a fire on your computer." The news had gone from our installation, to another 704 installation, to the East Coast and now back to me, all by the time I got into work. That says something about how much we were in contact with one another.

Share's Influence

WAGNER: We had dozens of committees on various technical matters. These were very influen-

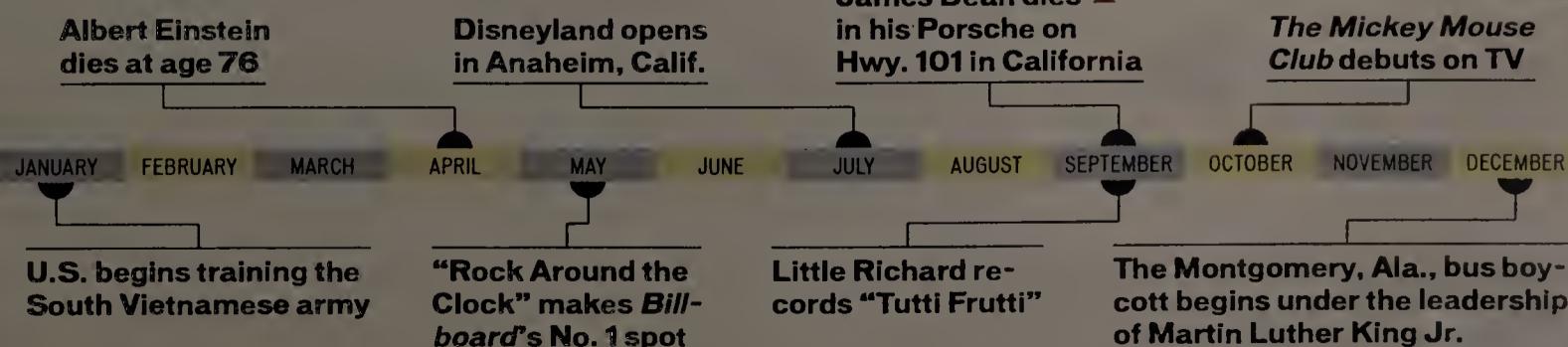
tial in directing IBM as to how they should behave in the technical world. We had a tremendous influence on the use of Fortran. It turned out that 90% of the engineering [and] scientific programs were written in Fortran. Without Share's backing, that wouldn't have happened.

BERNSTEIN: Share turned out to be, by accident or design, the first standards-setting organization in the [industry].

The IBM/Share Relationship

BERNSTEIN: For a customer that had never owned a computer before, IBM could say, You can join Share, with literally hundreds of experts and get all the support you need. It turned out to be best marketing tool that anyone could have invented. ▀

Brandel is a frequent contributor to Computerworld. Her E-mail address is brandel@cwix.com.



Massively Parallel Processing

BY LAURA HUNT

If your company is looking for a high-speed, high-performance system that can execute complex analysis on huge amounts of data, then massively parallel processing (MPP) may be just the technology you need.

MPP involves placing up to thousands of processors in a single box. Each processor has its own stored memory. When a query is sent, software breaks it up so that each processor completes a different part of the problem, making the response time very fast (see chart).

The concept is simple. "Think of people trying to dig a 1,000-foot trench. If one guy can do 10 feet an hour, 10 guys could do 100, and 100 could do the whole thing in one hour," says Richard Winter, an analyst at Winter Corp. in Waltham, Mass.

Other multiprocessing systems include symmetrical multiprocessing (SMP), in which processors share the database and memory. SMP is good for large databases that are updated continually. Because the database is shared, it's easier to update, says Rich Partridge, an analyst at Port Chester, N.Y.-

L

DEFINITION:
 Massively parallel processing (MPP) is used to solve large computational problems. Its architecture may comprise up to thousands of processors in one system. Each processor includes its own bus, memory, disks, copy of the operating system and applications. In MPP operation, the problem or query is broken up into separate pieces, which can be processed simultaneously.

based D.H. Brown Associates Inc.

Another form of multiprocessing is clustering technology, in which many servers are connected together (see QuickStudy, Dec. 21).

The choice between MPP, SMP and clustering technology depends on the nature of the problem being solved. If the problem can be easily partitioned or split, MPP is a good solution, Partridge says.

Many large companies, such as Fingerhut Cos. (see Q&A), Sears, Roebuck and Co., Wal-Mart Stores Inc., Citigroup Inc., MCI WorldCom Inc., Sprint Corp. and Dayton Hudson Corp., have discovered the benefits of

MPP and use it to store customer data, analyze customer behavior and segment customer categories for optimum marketing and sales activities.

Winter advises that users look at scalability requirements before implementing MPP, including how much detailed data is stored, how much of the data is used to find potential customers, how many transactions or queries are performed and how many concurrent users will be accessing the system.

"Once a database gets to a certain size, your user population suddenly gets much bigger or the level of complexity of your problem in-

creases, only MPP can help," Winter says.

One thing to keep in mind: These powerful systems don't come without a powerful price. According to Winter, a system with just a few processors or nodes can be implemented for \$400,000 or \$500,000. That would typically support a warehouse with 100G bytes to 300G bytes of data. A multinode system that can support a 1T-byte warehouse would cost a few million dollars, he says. ▀

MOREONLINE

For links to massively parallel processing-related vendors, consultants, research articles and books, visit our Web site. www.computerworld.com/more

Randy Erdahl, group manager of marketing analysis at catalog retailer Fingerhut Cos., describes the company's MPP system called Mail Stream Optimization.



Q: What do you use the system for?

A: The system allows us to look at customer history and information for 20 to 40 catalogs at a time to make sure the correct customers get the appropriate mailings.

Q: How does it work?

A: Models are built in SAS [Institute Inc. software] based on which customers want which products and which are most profitable.

Payment history, purchase history, mailing instructions, demographics are stored and modeled, and the SAS code individually scores each customer per catalog. Orchestrate [software from Torrent Systems Inc.] optimizes the query and searches for the best answer. The system allows us to make 100 decisions in concert, instead of 100 independent decisions. We send 7 million customer records through the process every week.

Q: How long did the project take to implement?

A: We spent three years designing, developing and testing the system. We went live in September.

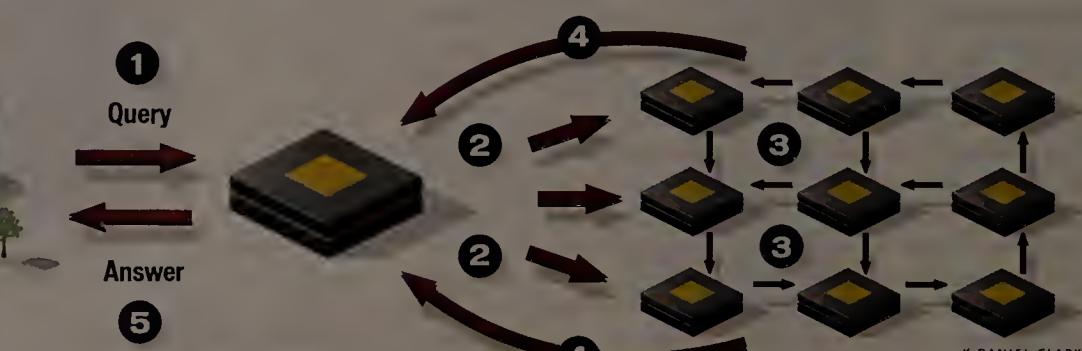
Q: What are the benefits of the system?

A: The application is saving money because we don't do ineffective mailings. The system also allows us to perform more complicated analysis of our customers.

Q: Were there any surprises during the process?

A: We were surprised to find the hardware is cheaper per processor. And we were surprised at how easy it was to implement, and the training was less expensive and easier than we anticipated. ▀

An Example of How MPP Works



1 A large retailer wants to know how many camcorders were sold in 1998, and sends that query to the MPP system

2 The query goes out to a processor that acts as the coordinator and breaks up the query. For example, it could break the query up by month. This "subquery" then goes to all the processors at the same time

3 Each subquery is assigned to a specific processor in the system. In this example, the sales tracking data was broken down by month, so each processor holds one month's worth of sales information

4 The responses to the queries are returned to the coordinating processor, which adds up the monthly data
5 Final answer is returned to the user

70 OF THE TOP 100 BANKS WORLDWIDE INVEST IN OUR TECHNOLOGY. WHERE ARE YOU PUTTING YOUR MONEY?



Sybase has the information technology you need to bring together different information systems and computing platforms into one powerful solution. So everyone in your organization has the information they need, when and where they need it.

Our technology is used at:

- 70% of the world's top banks
- Stock markets from Tokyo to New York
- 19 of the top 25 US Life/Health Insurers

We're helping them develop applications for things such as:

- Sales Force Automation
- Global Risk Management
- Electronic Commerce/Internet

For more information about how we could put together a solution for your business, visit www.sybase.com or call 1-800-8-SYBASE (Ref. CPCW2).

SYBASE
INFORMATION ANYWHERE™

©1998 Sybase, Inc. All rights reserved. All trademarks are the property of their respective owners. Photomosaic™ Rob Silvers www.photomosaic.com

Provision



The modular enterprise management solution that fits your needs, not just your framework.

Your search is over.

Database Management

Maximize your data availability and response time while improving performance, increasing application efficiency and enhancing reliability of the underlying databases.

Systems Management

Increase productivity and availability by automating your repetitive tasks, centralizing job scheduling, securing user and data access, and improving application performance.

Application Management

Manage, monitor and enhance the functionality of your mission-critical applications to improve user service levels, automate operations, and guarantee high performance and availability.

Desktop Management

Centrally manage your desktop environment through automated configuration management, software distribution and inventory, and a consolidated service desk to enhance efficiency and productivity.

Network Management

Proactively monitor, manage, and analyze your network and Internet to identify potential bottlenecks, increase uptime, improve response times, and quickly resolve problems.

Finally, there's one solution for managing your enterprise. Modular, so you can deploy what you need, when you need it. Comprehensive, so you can manage it all. Call 1-800-890-7528 x10203, or visit: www.platinum.com/search

make **IT** shine™

data • systems • apps

PLATINUM
TECHNOLOGY

BRIEFS**Internet 2 Advances**

IBM last week announced the Internet 2 Distributed Storage Infrastructure initiative, designed to support advanced applications such as real-time broadcast and video.

The initiative, the second major piece of the next-generation Internet, is seen as vital to the Internet 2 project's goal of making collaborative research and distance learning more practical.

Profiling Legacy Data

Evoke Software Corp. is shipping Migration Architect 2.1, software that helps users profile legacy data before implementing enterprise resource planning or data warehousing projects.

The San Francisco company said the new version adds Windows NT support. The software costs \$200,000 for the server and \$50,000 for each concurrent user.

www.evokesoft.com

Linking Up Remote Users

WRQ Inc. has announced Reflection EnterView 2.0, Web-to-host server software that lets remote users connect to legacy applications. The Java-based tool now offers IBM 5250 emulation for IBM AS/400 hosts and Hewlett-Packard Co. 700/94 as well as 700/98 emulation for HP 3000 and 9000 hosts.

The software, which costs \$135 per seat, will ship in March.

www.wrq.com

Fax for Domino

Lotus Development Corp. has announced Fax for Domino 4.0, a server-based product that lets Lotus Notes users send and receive faxes from

within their Notes client. According to the Cambridge, Mass., vendor, Version 4.0 lets mobile users send and receive faxes from the road and prioritizes outbound faxes based on pre-defined rules. Pricing wasn't announced.

www.lotus.com

Self-Service Platform

Edify Corp. last week announced Electronic Workforce 6, a development and runtime platform for applications that enables customer self-service. According to the Santa Clara, Calif., company, the platform now supports Microsoft Corp.'s Component Object Model and provides connectivity to existing back-office systems.

Platform pricing begins at \$150,000.

www.edify.com

Who's Buying What

LEVI STRAUSS & CO. has purchased MK MANUFACTURING for its Richardson, Texas, technology center. The manufacturing resource planning software is sold by MK GROUP, which is a business unit of COMPUTER ASSOCIATES INTERNATIONAL INC.

St. Louis-based MONSANTO CO. has purchased Palo Alto, Calif.-based ACTA TECHNOLOGY INC.'s Acta-Works SAP R/3-to-data warehouse extraction tool, which the company will use to build an ORACLE CORP. data warehouse for its business divisions.

The LOUISIANA DEPARTMENT OF NATURAL RESOURCES last week said it is deploying a FILENET CORP.-based document management system to let state citizens and employees electronically review public-domain documents for oil and gas well permits, drilling, products and royalty accounts.

FRANKLY SPEAKING/FRANK HAYES

Turing's thumb

A

ROUND 1950, computer science pioneer Alan Turing came up with a simple rule of thumb for artificial intelligence. Turing suggested that if users held two conversations — one with a computer, the other with a human — and at the end couldn't pick out the computer more than 50% of the time, we'd have to conclude that the computer was intelligent. The now-famous Turing test wasn't based on complicated metrics or extensive statistical analysis, complex methodologies or weird psychobabble theories. It was a commonsense observation:

If you can't tell the processor from the person, you might as well say the computer is as intelligent as the human being.

Forty years later, we have a different problem. We're trying to decide how well our systems meet users' needs. We've got more metrics, methodologies, statistics and psychobabble than we can use.

Trouble is, our systems don't seem to be getting any more effective.

Maybe we should deep-six the fancy stuff, at least for a while. Maybe, instead, we should adopt some variations on Turing's 50% rule of thumb to put how well we're doing into perspective.

For example, are users convinced that a system is actually useful more than 50% of the time?

If not, you've got a system that simply doesn't do what it's supposed to do. Maybe you should rip it out and replace it.

Does any one employee actually use more than half the system's features? If not, you've got either bloatware or a serious lack of user training — and usually an oversupply of features.

Maybe you should trim out the unnecessary code. Or, if different feature sets are used by different groups of users, maybe what you need are several simpler versions instead of one large, complex version that will eventually become a nightmare to maintain.

Do users believe more than 50% of the system's features are useful? If they don't, you've got a worse problem than bloatware — your users have lost faith in the system's usefulness. You need to do a much better job of explaining what the system's features are and what their value is.

Do more than half of your users think the system is sufficiently responsive? If they don't, you need to tweak your networks or start beefing up your hardware — that many users can't be wrong about the meaning of "fast enough."

By now, you've probably noticed that these aren't questions you can resolve by counting bugs or monitoring network loads. To get these answers, you'll have to talk to your users.

But you shouldn't stop at questions about features and responsiveness. Find out how satisfied your users are. Does the system make their targeted task 50% easier? Does it let users perform the task 50% faster — or at least make it faster 50% of the time? Do users think the system pays for itself at least half the time?

Although users may not know what the system actually cost, if they really believe the system is returning its investment, that vote of confidence means you're doing something very right.

It means they think of the system as a valuable tool — not as deadweight slowing them down.

Sure, these 50%-rules-of-thumb are unscientific. They're anecdotal, inconclusive, maybe even frivolous, compared with all those *real* metrics that you can gather.

But ignore these unscientific rules at your peril. They'll give you the bottom line on how your systems stand with users.

And there's nothing artificial about that sort of intelligence at all. ▀

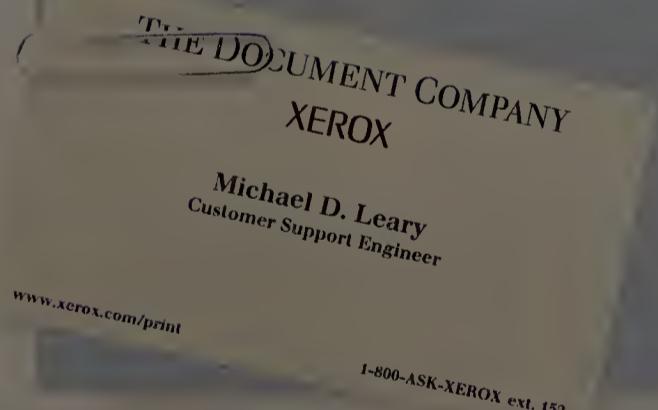
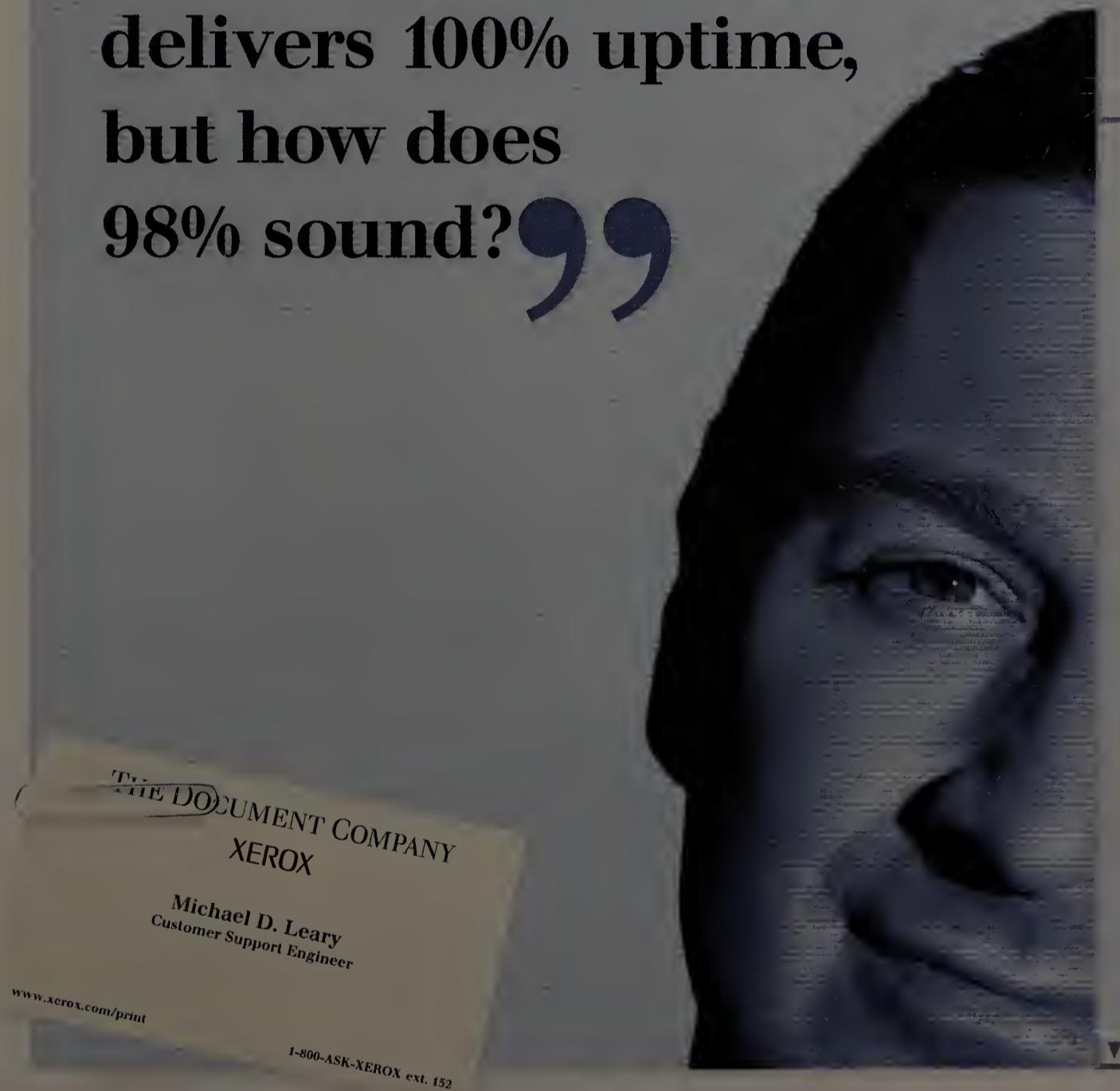
To see how IT is doing, it's time to deep-six the fancy metrics.



Hayes, Computerworld's staff columnist, has covered IT for 20 years and still has at least 50% of his thumbs. His E-mail address is frank_hayes@computerworld.com.

Documents are digital. Documents are paper.

66 When it comes to production printing, no one delivers 100% uptime, but how does 98% sound? 99



Nobody wants to be down during a critical print window. So, Xerox is dedicated to keeping uptime at 98%. But if downtime occurs, we'll get you up and running fast. Our over 10,000 trained service professionals average 18 years of experience. Virtually any part you need is available

locally. And the reliability of our entire line of *DocuPrint Production Printers* is backed by our unique Total Satisfaction Guarantee. Because the only thing better than 98% uptime is 100% Xerox commitment. To learn more, visit our website at www.xerox.com/print.

X

THE DOCUMENT COMPANY
XEROX

Print
The
Document[®]

If you're far behind on year 2000, there are emergency maneuvers you can try – but they're long shots

By Alan Radding

YEAR 2000 CRUNCH TIME has arrived. If your critical business applications aren't fixed and being put through the testing process by now, you're heading for problems. Managers hoping to win the year 2000-compliance game at the buzzer are bound to be disappointed. Even the most promising crunch-time tools and tactics are problematic at best — not the sort of thing on which anybody wants to bet their business or career.

"If companies are not well under way by now, they will probably find themselves in big trouble," says John O'Brien, consulting manager at Systems Integration Group Inc. in Houston. At this point, O'Brien's best recommendation is aggressive triage: Identify only the most critical systems and fix them as fast as possible, letting everything else slide. For example, fix your sales order entry systems so you can continue to process orders after Jan. 1, 2000. On the other hand, you can leave your decision-support applications for later — the business will survive if static historical data gets sorted improperly for a while.

In the crunch-time rush, don't forget the upside to the year 2000 problem — better systems. "I just couldn't justify rewriting all our reports until the Y2K problem," says Chuck Kensicki, director of business management systems at the office of the chancellor of the California State University System in Seal Beach, Calif. His data mart strategy not only ensures that his users will be able to access key data, but also delivers "much better reports than the old green bar," he notes.

For those falling dangerously behind, year 2000 project managers and consultants offer up some crunch-time tactics. Be advised, however: There are no magic solutions. The following tools and tactics may prove helpful, but there are no guarantees. Every crunch time situation is different.

Data Migration Tools

Escape the year 2000 problem altogether by migrating to year 2000-compliant packaged applications. That's a favorite strategy, but you'll need some shortcuts at this late date. Borders Group Inc. in Ann Arbor, Mich., pulled off a switch to PeopleSoft Inc.

applications in just 11 months with the help of a data-migration tool from Convoy Corp., which expedited the process of extracting the data from the legacy system and transforming it into year 2000-compliant form, says John Cooper, project manager at Borders. The Convoy data-migration tool trimmed three to four months off the implementation process, he says.

Any good automated data-migration tool can speed up the task. If the organization is ready to start implementing the packaged application today and is willing to accept the package's default configurations, it might pull off a migration in the months remaining. But it will be close.

For anyone else, it's already too late.

Escape to a Hot Site

If your hardware and communications infrastructure rather than your application is creating your year 2000 problem, you can run to a "hot site," where disaster-recovery vendors such as Comdisco Inc. in Rosemont, Ill., offer year 2000-compliant platforms. For most companies, however, the biggest year 2000 problems are buried in the application logic and data, not the hardware or communications infrastructure. "If the code won't work at home, it won't here," warns Allan Graham, senior vice president at Comdisco.

Speed Up Testing

The actual year 2000 code fix is relatively simple and straightforward. It's the testing that's arduous and time-consuming. Preparing and aging the data for test purposes represents a substantial testing bottleneck. Automated data-aging tools can speed the process and lop months of work off the task, but such tools vary widely in performance, consistency and reliability. After testing four automated aging tools, Sage Consulting LLC, a year 2000 consulting firm based in Princeton, N.J., turned to Princeton Softech Inc.'s Ager 2000, which Sage said did best in terms of consistency of results. "With Ager 2000, it takes one-tenth the time to age mainframe data compared to writing it yourself in Cobol," reports Ed Soesman, a consultant at Sage.

Continued on page 78

UP A CREEK?

Here's a



LARA JO REGAN

CHUCK KENSICKI of the California State University System found an upside to the year 2000 problem: better systems. Instead of rewriting 400 to 500 non-year 2000-compliant mainframe financial reporting programs, he was able to justify building a new Oracle data mart.

Padie

Continued from page 76

There are several data-aging tools available. For example, United Stationers Supply Co. in Des Plaines, Ill., uses TransCentury File Age and TransCentury Date Simulator from Platinum Technology Inc. to prepare data for year 2000 testing. The company completed its year 2000 code corrections around Thanksgiving and is devoting the time remaining to testing the resulting programs and contingency planning, says Bob Niedzwiecki, year 2000 project director. "We're examining our processing schedule for the last business day of 1999 to minimize the risk of any jobs running at midnight."

Testing Alternatives

Complete testing is a big, time-consuming job. With so little time remaining, many companies need to shortcut testing. Those desperate for quick-and-dirty testing can try a dipstick test, which is a way to avoid comprehensive testing, explains year 2000 consultant Gregory Morris, CEO of Flat River Technologies LLC in Mount Pleasant, Mich.

Dipstick testing involves using two automated testing tools to review a sample of fixed code. If the sample code tests well with both tools, you can assume the code is pretty solid. Morris uses testing tools from Platinum Technology and Micro Focus Inc. for Cobol code testing. Any two testing tools will do the job, however.

Dipstick testing can work in some cases, but you're taking a real chance, Soesman warns. In situations where there are extensive dependencies among many pieces of code, this approach becomes risky because you're not testing the full code with all of its dependencies.

MARC BERLOW



It also requires buying, implementing and learning two tools so you can get, in effect, two views of the same code. That also takes precious time.

Independent Verification and Validation

Independent verification and validation (IV&V) involves using assessment tools to do essentially the same thing as dipstick testing, but IV&V takes place

We're examining our processing schedule for the last business day of 1999 to minimize the risk of any jobs running at midnight.

BOB NIEDZWIECKI, YEAR 2000 PROJECT DIRECTOR, UNITED STATIONERS SUPPLY CO.

during the assessment phase, when you're scanning code to determine the likelihood of year 2000 problems. If you haven't even started code assessment, a key triage step, IV&V can speed you along.

"It is really like getting a second opinion on your code, and it can save a lot of time," says Steve Frycki, managing director of year 2000 services at DMR Consulting Group Inc. in Edison, N.J. IV&V saves time

FAST FACTS

Y2K Site-Seeing

Here's a sampling of year 2000 Web sites that could prove useful to information technology managers — along with comments on how useful we thought they were:

Year 2000 expert Peter de Jager has put together quite an informational resource for IT folks. You'll find things such as links to press clips, vendors and products, user groups, conferences, job opportunities (a limited list), year 2000 stocks, and hardware and software compliance information. It's well-organized, and we had no trouble linking to any of the sites.

■ www.year2000.com

Our very own year 2000 resource offers links to year 2000 sites. Computerworld articles dating back to early 1997, periodicals and books, reports, vertical industry information, product sampling, legal guidelines and user groups. We also have an ongoing feature, called Year 2000 Chronicles, in which we track six companies as they deal with the political, staffing and technical issues that surround year 2000.

■ www.computerworld.com

Reporting the results of a survey conducted in December, Cap Gemini America LLC states, "With one year remaining until the new millennium . . . a majority of America's

largest corporations have already experienced Year 2000-related failures. Nearly all of the companies surveyed — 98% — expect more such failures in 1999." The site also offers other year 2000 information.

■ www.usa.capgemini.com

The primary information offerings here include listings of and links to Ed Yourdon's publications, including articles and books such as *Y2K for Fun and Profit* and *Time Bomb 2000*. But Yourdon's site also offers the most comprehensive list of related books and articles that we've come across in site checks. One of the sites, the Y2000 Personal Preparation site (www.readyforY2k.com), includes articles, checklists and links to various vendors of books, food and other material.

■ www.yourdon.com

This touts itself as a site that offers quick links and informational databases, along with evaluation of year 2000 software and hardware. But we found it a bit confusing.

■ www.Y2Klinks.com

This site calls itself the official site of the President's Council on Year 2000 Conversion. Here you'll get updates on the council's activities, information on the economic impact of year 2000, various articles on compliance, consumer links and information about Social Secur-

ity issues. It's easy to navigate, but some links lead only to telephone hot lines, which then lead you to frustrating "press 1 for this" messages.

■ www.Y2K.gov

The founders of this site are technology lawyers. They offer information about legal issues, and they have opened up the site to lead visitors to other sources of information, such as year 2000-related articles, vendors and conferences. A disclaimer warns that the statements and links in the vendor listing "are paid advertisements."

■ www.Y2K.com

This site was created by a former CEO of United Press International. It appears to be geared to the general public and offers a "Y2K-today Resource Guide" that gives an overview of what the problem is, what's being done about it, and how your community and business can prepare. The site is very well-organized, easy to navigate and interesting. It tracks year 2000 articles by industry and even has its own radio program. One of the links takes you to the Cassandra Project, which is run by a nonprofit group that discusses community preparedness.

■ www.Y2Ktoday.com

The Information Technology Association of America's (ITAA) Web site provides information about the IT industry, associa-

tion programs, publications, meetings, seminars and more. It also offers links to an extensive year 2000 resource page that provides a directory of vendors (133 are listed, but they aren't organized by groupings), links to surveys, ITAA books and publications, information about a year 2000 task force consisting of computer software and services vendors and the "Y2K Outlook Newsletter," which is available by subscription.

■ www.itaa.org/year2000.htm

Gartner Group Inc.'s package of year 2000 information features a very interesting report geared to real people. That's right — how is all of this going to affect us, not just how your company is going to beat the deadline. The report, "Year 2000 Risk Assessment and Planning for Individuals," provides lists of year 2000 risks for individuals' problems, along with suggested actions. The bottom line: Prepare for short-term, localized failures of services and infrastructure rather than an apocalypse. Go to "Hot Content" to find this report.

■ www.gartner.com

This site, hosted by Electronic Systems Center and The Mitre Corp., sets itself apart from other useful sites by identifying potential year 2000 problem dates (such as the leap year) and offering steps to correct them. It also offers extensive links to other sites.

■ www.mitre.org/research/y2k

TECHNOLOGY FIELD REPORT

because it can help you rule out code that's unlikely to cause problems, allowing you to concentrate efforts on known problem code in the remaining time. Of course, you still must fix code that shows up badly in the dual assessment. Also, the results aren't foolproof — bad code can slip through.

Most leading assessment and testing tool vendors offer IV&V products. However, the tools were intended not to be a shortcut for the initial code assessment process but a final check once all the fixes were completed and tested. "IV&V is really part of litigation-proofing, the final step in the Y2K process," Morris says.

Ensuring Access to Key Data

If there's no way to save your applications, you at least can ensure continued access to critical data while programmers madly scramble to fix the code — at least that's the logic behind the data mart strategy promoted by Brio Technology Inc. The plan calls for moving critical data into a year 2000-compliant database, such as an Oracle Corp. product. In the data-transfer process, automated migration tools easily can expand two-digit dates to four digits.

Then, by using whatever year 2000-compliant front-end tool the organization prefers, end users can continue to access critical data — even if the usual applications and mainframe data reports are experiencing problems.

The California State University System adopted that approach for its financial reporting systems, which serve 23 college campuses. It built a 12G-byte data mart on an Oracle database and adopted Brio tools for front-end access instead of rewriting 400

to 500 non-year 2000-compliant mainframe reporting programs, Kensicki says.

Kensicki installed an Oracle database on the systemwide extranet. The legacy data automatically is converted to the four-digit date format as it's loaded into Oracle. Kensicki's team quickly set up reports in Brio, and end users create their own reports, further speeding the process. This approach freed Kensicki's programmers to go back to work on the mainframe application and date logic. "If we had to do it all on the mainframe, we'd still be at it," he says.

Although the data mart approach — using Brio or other front-end data access tools such as those from Cognos Inc. and Business Objects S.A. — sounds attractive, it has its limitations. First, it solves only the reporting problem — it does nothing about updates and transactions. For year 2000 purposes, it buys you only as much time as you need to function without processing new transactions, although a larger benefit in terms of better reporting transcends the year 2000 problem.

Second, setting up a data mart isn't trivial. "This is a smart tactic if you can do it, but it is really for the chosen few," says Russ Kelly, a year 2000 consultant in Seneca, S.C. Data marts, he points out, are neither inexpensive nor easy to build. If you're starting from scratch, you need to buy and install the database, data extraction and transfer tools and the front-end tool. You will have to determine if the benefits are worth diverting money and time from your primary year 2000 repair effort.

With year 2000-compliant PCs available for less than \$1,000, it makes sense to replace problem PCs. However, "we have clients with older PCs that they

just can't replace due to the cost involved," says Jason Mitchell, a senior systems engineer at Kiefer Confanti and Co., an accounting and consulting firm in St. Louis.

To solve the problem of old PCs, Mitchell recommends PCFix 2000 from The About Time Group in Atlanta. Once installed, the tool masks any year 2000 problems with the hardware and BIOS every time the machine is booted.

Memory Hogs

There are numerous tools that fix PCs by masking year 2000 problems in the hardware or BIOS, but many of the tools are based on terminate-and-stay-resident (TSR) programs and thus consume memory, which is in short supply on the older PCs most likely to need this type of fix.

PCFix 2000, Mitchell reports, doesn't consume system resources the way TSR-based fixes do. Mitchell says the network-downloadable PCFix allowed him to make a 30-user LAN year 2000-compliant in two hours. The tool doesn't do anything with PC applications or data that may suffer year 2000 glitches and isn't recommended as a long-term solution. "But when you're under budget and time constraints, it really works," Mitchell says.

There also are desktop utilities that fix PCs, but they typically have to be implemented one PC at a time. If you're looking at a few thousand — or even a few hundred — legacy PCs in need of a fix, you have a lot of work to do in the short time ahead. ▀

Radding is a technology writer in Newton, Mass. He can be reached at radding@mediaone.net.

Report Excerpts

Gartner Group "Year 2000 Risk Assessment and Planning for Individuals" (Oct. 28, 1998)

Individuals in Australia, Canada, the Netherlands, Scandinavia, the U.K. and the U.S. will have some disruptions, inconveniences and discontinuities during the first week of January 2000. The biggest risk is from failures and outages of telephone and power service, but the rest should be manageable. Countries in Asia and Latin America and emerging countries will have potentially larger disruptions because businesses and governments in those areas are behind in fixing critical functions.

The largest enterprises — banks, retailers, distributors and manufacturers — in general will be the most prepared and have the lowest risk factors. The same is true for most large multinational enterprises. Most of those companies started to prepare early and have had the resources to at least fix their most important systems. Failure of critical government systems continues to pose the greatest threat.

Individuals should make contingency plans based on the risks in their countries. Travel anywhere in the world in January 2000 should be deferred if possible. The progress by banks and investment companies in solving year 2000 problems should be monitored. Gartner Group

doesn't recommend liquidating assets or withdrawing all funds from banks.

A key risk for individuals:

Being employed by an enterprise that, because of poor year 2000 preparation, suffers significant damage (such as business interruption or legal damages) that jeopardizes future employment.

Big vs. small:

Small enterprises are further behind than midsize and large companies. Individuals should maintain awareness of the status of their employers' year 2000-compliance status.

Heads up:

Be extra careful about scams and unqualified advice. Be aware that broadcast news and the business press may have very pessimistic outlooks because of information circulated by those with vested interests — that is, year 2000 service and software vendors, private consultants and consulting companies.

Cap Gemini December 1998 report on Year 2000-Related Computer Failures

The survey shows that a majority of America's largest corporations already have experienced year 2000-related failures. Nearly all the companies surveyed (98%) expect more such failures this year. More than half the organizations (74%) expected that more than half of their systems were to be tested and compliant by Jan. 1, 1999.

Personal Year 2000 Risk Assessment

Gartner Group says actual failures will be less severe than most individuals fear

CATEGORY	CRITICALITY (NO. OF DAYS)	CONTINGENCY PLAN
Telephone	0.5	Cellular Backup
Credit cards	1	Have cash on hand
Health insurance	1	Copy, carry card
Oil delivery for heat	1	Fill Dec. 99
Water	1	Stock jugs
Security systems	1	Check compliance
Automobile	3	Fill tank Dec. 99
Grocery market	3	Stock up Dec. 99
Pharmacy	3	Refill Rx Dec. 99
Payroll check	5	Save two weeks' pay

SOURCE: GARTNER GROUP INC.

However, 92% reported that missed deadlines in their year 2000 plans are increasing, up from 84% in July 1998.

The number of companies that are very likely, or potentially likely, to stop doing business with noncompliant suppliers rose to 69%, up from 60% in the third quarter of 1998.

Cutter Information Corp. "IT Metrics Strategies" newsletter, edited and survey data by Howard Rubin

Actual year 2000 spending is far lower than budget estimates. Most companies estimated they would spend 20% to 30% of their IT budgets on year 2000, but U.S. figures indicate the actual level is about 8% to 9%.

Contingency planning is now under way at 90% of those organizations surveyed — up from 72% in June 1998 and only 3% in March 1998.

The plans are being developed by existing continuity teams in 20% of cases, by year 2000 teams in 35% of cases and by joint teams in 45% of cases.

Most of this work (60%) focuses on prevention of disruption; 30% focuses on mitigating problems once they occur; and 10% focuses on both approaches.

For more information on this report, visit www.cutter.com.
— Compiled by Cathleen Gagne

MOREONLINE

Cast your vote. Computerworld wants you to vote on the top 100 IT products of the 20th century. www.computerworld.com/more

Around the globe, it's the
best-known brand
in technology publishing



COMPUTERWORLD
THE NEWSPAPER

COMPUTERWORLD FOR IT LEADERS

From New York to Silicon Valley, Tokyo to London, and points between, nobody covers technology like *Computerworld*. We deliver the leaders of the IT economy—the men and women who bet their careers and the success of their companies on the IT choices they make. They need the right news, right away, on what works, what doesn't, and why.

Over twelve million of them find it in *Computerworld* every week.

Our reputation for quality is second to none: four times as many editorial awards as our two closest competitors combined, and more business press mentions than any other enterprise weekly. Which just may qualify *Computerworld* as the most authoritative advocate for IT Leaders putting technology to work building greater business value.

Awards from: Academy of Web Design, American Society of Business Press Editors (ASBPE), Computer Press Awards (CPA), Folio:, Public Relations Society of America (PRSA), Editor & Publisher Magazine, and the Western Publications Association. Press mentions: Lexis-Nexis (Forbes, Business Week, Fortune, NY Times, Wall St. Journal) 9/1/96 to 9/1/98.

Nothing Could Be Finer . . .

North Carolina IT managers are upping compensation and hiring whole hog

BY DEBORAH RADCLIFF

KEITH WOOD went back to school and snagged a \$35,000 help desk position at one of the largest area law firms after only three semesters at Forsythe Technical Community College in Winston-Salem, N.C.

Project manager John Manderewicz, relocating from Florida, entertained four offers before taking a job at Piedmont Natural Gas Co. in Charlotte, N.C. Now his searches for project managers take six to nine months.

Welcome to North Carolina, a state so hungry for IT workers that hiring bonuses are the rule rather than the exception.

It's a state that falls in the middle of one of two of the most aggressive hiring regions for this year, according to *Computerworld's* Jobs Forecast '99. According to the Bureau of Labor Statistics, North Carolina's technical job openings will increase by 200% to 500% from 1996 to 2000.

Move over, textile and tobacco companies — the high-tech, medical research, financial and insurance industries are taking root. For those who don't mind an occasional hurricane or

smelly pig farms (North Carolina is the state with the second-largest number of hogs, according to *The News & Observer* newspaper in Raleigh), this renaissance spells opportunity for information technology workers at all levels.

Entry-level work can pull in wages comparable to the median income of, say, Boston, where the cost of living is nearly 30% higher than in North Carolina. Seasoned project managers can write their own tickets. Networking specialists, middleware and mainframe developers, Microsoft Certified Engineers (MSCE) and specialists certified in Oracle Corp., PeopleSoft Inc. and Cisco Systems Inc. technologies also can expect premiums.

Research Triangle: Raleigh, Durham and Chapel Hill

The key to North Carolina's evolving economy is efficiency. Hence, Blue Cross/Blue Shield of North Carolina in Durham is migrating to an AS/400 system to support a new, streamlined product line. "This means hiring for a whole new set of skills," says Norm Phelps, senior vice president of operations/data center services.

Last year alone, the company strug-

gled to fill 150 openings, mostly mainframe, LAN and WAN developers and hardware specialists, along with a number of MSCEs. "Depending on a person's skills and how long they've been working on mainframes, they can demand [\$70,000] to [\$80,000] for jobs in this region," Phelps says.

Charlotte

Piedmont Natural Gas is streamlining operations by moving its financial and human resources operations to a PeopleSoft system. W. R. "Dick" Pritchard, vice president of information services, is trying to fill 20 positions in his 100-person IT shop. Specifically, he needs Oracle database administrators and Windows NT, Unix and PeopleSoft specialists.

Piedmont also has revamped salaries to reflect the growing economy. "In the past 12 months, we've changed our compensation programs substantially. We're offering variable pay components and pay based on performance along with bonuses for successful completion of projects," Pritchard says.

Winston-Salem

Inmar Enterprises Inc., a store coupon and expired-product clearinghouse in Winston-Salem, is betting on its new Citrix Systems Inc. thin-client terminal servers and Web-based computing to improve efficiency.

Gary Sloat, director of IT at Inmar, says his organization has learned so much about thin-client development that it just opened a division to develop such networks for other firms.

But when Inmar tried to partner with Microsoft Corp. for its SQL Server 7.0 work, Sloat ran into a problem: A three-month search failed to find the two MSCEs Microsoft required. So he's sending staffers to school, with Inmar footing the bill.

When asked what advice they would offer job hunters, IT managers from all regions chimed, "Come here."

IT in North Carolina

Companies with large IT staffs

COMPANY	IT EMPLOYEES
Charlotte	
First National Bank of N.C.	1,300
Duke Energy Corp.	1,000
Allstate Insurance Co.	100
Piedmont Natural Gas	100
Durham	
IBM Integrated Solutions Center	1,700
Glaxco Wellcome Co.	600
Lockheed Martin Corp.	500
Laboratory Corp. of America	250
Raleigh	
Square D Co.	400
N.C. Information Processing Svcs.	357
First Citizens Bancshares	250
GE Capital Mortgage Co.	250
Electronic Data Systems Corp.	120
Winston-Salem	
US Airways Group Inc.	800
Pleasant Hardware Co.	180
Sara Lee Direct	160
Baptist Medical Center	125

IT Top 10 in N.C.

IT managers say they will be hiring for these job titles most often this year

1. Project manager
2. Senior programmer/analyst
3. Senior systems analyst
4. Network administrator
5. PC technical support specialist
6. Programmer/analyst
7. Webmaster/Web designer
8. LAN manager
9. Technical support manager
10. Computer operator

Manderewicz recommends seeking jobs in high-growth areas and staying in a vertical industry you have worked in before. If you're unsure about laying down roots, Piedmont's Pritchard suggests testing the area as a contractor.

Interestingly, none of these managers breathed a word about the pig problem, news of which earned *The News & Observer* a Pulitzer Prize three years ago. ▀

Radcliff is a freelance writer in Northern California. Contact her at DeRad@aol.com.

Charlotte's 72,250-seat Ericsson Stadium, home of the Carolina Panthers football team



CHARLOTTE CONVENTION AND VISITORS BUREAU

SOURCE: APPLIED COMPUTER RESEARCH INC. PHOENIX

SOURCE: COMPUTERWORLD'S JOBS FORECAST '99



Can you be ingenious on a regular basis?

Explore Professional Opportunities In Technology

You've always had that rare talent. While your friends scratched their heads, your mind grabbed the pieces, Assembled them, And came up with the brilliant solution. Today, your technology insights could have a profound impact on the way world-class organizations do business.

As a leading management and technology consulting organization, Andersen Consulting works with clients who are constantly seeking

ways to operate and compete more successfully. Exercising your technical fluency and creativity, you'll build the technological foundations that help organizations align strategy with people, process and technology—a holistic approach that transforms visionary ideas into successful, real-world solutions.

It's an environment to learn in, grow, and push the envelope. There's a wide range of opportunities, from

deepening skills in tools like JAVA and developing Enterprise Resource Planning solutions, to taking on leadership responsibilities. To explore opportunities, visit our Web site at www.ac.com/careers/explore.

Bring your technology talents to us.

AC Andersen Consulting

Identify. Implement. Impact.

As an IT professional, you thrive on the challenge of using your analytical skills to identify problems and implement solutions. You're ready to make an impact. At Pitt County Memorial Hospital, part of University Health Systems of Eastern Carolina, we've got the ideal program for your success-filled future. With a new expansion underway integrating our system of state-of-the-art facilities, comes all the exciting high-tech opportunities that go along with it. And when you consider the impact you'll have on the technical infrastructure of one of the region's most innovative healthcare providers, the \$5,000 sign-on bonus is merely icing on the cake. Join us.

Up to \$5,000 Sign-On Bonus!

If you have skills in any of these applications, we want to hear from you!

- Clinical and Financial application selection, development, implementation, and support
- COBOL/CICS/JCL development and support
- 4GL development and reporting (Focus, Microsoft Access, Visual Basic, Crystal)
- Windows NT, Novell Netware, and Groupwise Administration
- WAN/LAN management and performance activities
- Experience with TCP/IP and IPX
- Interface development and support experience with knowledge of HL7, UNIX, SMS OpenLink, or STC Datagate

We also have opportunities available for:

Systems Programmers

- Responsible for mainframe system software on IBM ES/9000
- OS/390 CICS, VTAM, and NCP support
- Third party software installation and support (ex. Boole and Babbage products)
- Experience with installation and support of DB2, TCP/IP, Advantis links, and networking

We offer our valued team competitive salaries, comprehensive benefits and excellent opportunities for professional growth. All interested candidates should indicate position or skill of interest when forwarding resumes to: Employment Office, Pitt County Memorial Hospital, P.O. Box 6028, Greenville, NC 27835-6028; FAX: (252) 816-8225; Phone: (800) 346-4307; or E-mail: twestbrook@pcmh.com. We are an Equal Opportunity Employer dedicated to diversity in all that we do.

Impact Your Career With A Visit To: www.uhseast.com

PITT COUNTY MEMORIAL HOSPITAL
University Health Systems of Eastern Carolina

Do You Know Cindy?

Cindy works for us.
Over 20 years now!
Where do you work?
Maybe you should call Cindy.
If you knew Cindy like a lot of people
know Cindy you wouldn't need
to read this.
Get to know Cindy. Get to know us.

DataMasters.
You should meet our people.

Yeah, we've got all that...

- Mainframe & PC positions
- Contract & Permanent
- Medical/Dental/401(k)
- Referral Fees
- Location, Location, Location

DM
DataMasters®
Since 1971

Business Solutions ~~~ People & Technology

PO Box 14548 Dept. CW, Greensboro, NC 27415-4548
336-373-1461 800-DATAMASTERS Fax 336-373-1501
<http://www.datamasters.com>
email@datamasters.com



EXCEPTIONAL TALENT, EXTRAORDINARY VISION

By joining this extraordinary team, you do more than create a dynamic career in an exceptionally invigorating environment. You share the extraordinary vision that drives the Duke community. As the leader in medical information systems, we're seeking the following professionals to join our team.

Nursing Informatics System Specialist

Senior Program Project Manager

Sr. Systems Programmers • Analyst Programmers

Network Analysts • Health Systems User Analysts

Please send your resume to: **Attn: Camille Gibbs, Duke University, Box 90496, Durham, NC 27708**; e-mail c.gibbs@duke.edu; or fax (919) 684-8864.

www.hr.duke.edu



Duke University
Duke University Health System

Duke University Is An Equal Opportunity/Affirmative Action Employer

FIND

I.T. Consulting Careers

HERE

COMPUTERWORLD

DATA INFORMATION IN THIS ADVERTISING
IS PROVIDED FOR INFORMATION PURPOSES
BY THE SOURCE FOR INFORMATION AND COMMUNICATION

Directory of
**CONSULTING
EMPLOYERS**
1998

computerworldcareers.com

99
June 6-9
1999
TECHNICAL
RECRUITING
& RETENTION
CONFERENCE
COMPUTERWORLD

1-800-488-9204

COMPUTERWORLD
CAREERS

IT CAREERS

Several permanent openings for Programmer/Analysts to design, develop, test and implement transaction processing/business application software in mainframe or client/server environments utilizing Assembler, CICS, and JCL. B.Sc. in Computer Science, Mathematics, Engineering, or related field and minimum one-year applicable work experience. Salary starts at \$55,000 and increases commensurate with experience and ability. Send resume to: Global Software, Attn: Recruiting, 1110 Northchase Parkway, Ste. 250, Marietta, GA 30067.

Software Development Engineer needed by NJ Sware Dvlpmnt & Computer Consulting Co. to configure and implement logistics module of SAP R/3 Sware System at job locations in San Antonio, TX & nationwide. Must have 1 yr experience as Software Development Engineer or as Functional Consultant or SAP Consultant. Masters in Comp Sci, Mgmt or Engg req'd. Respond to: HR Dept., Horizon Computers, Inc., 5 Lincoln Hwy, Edison, NJ 08820.

**Find I.T.
Consulting
Careers
Here**

COMPUTERWORLD

computerworldcareers.com

PEOPLESOFIT PROJECT DIRECTOR

California State University, San Bernardino

(CSUSB) is seeking a success oriented Project Director to manage & implement the CSU baseline PeopleSoft HR, Financial, Development, & Student Admin modules at CSUSB, a dynamic & growth oriented, institution.

CSUSB is located 60 miles east of Los Angeles. The area offers a wide variety of recreational and cultural opportunities. Housing costs are about one-half of those in L.A. The university currently has approximately 13,000 students and an annual budget of more than \$90 million.

Qualifications:

Equivalent to an undergraduate degree in Business, Computer Science or a related area. A Master's degree is preferred; Demonstrated experience & success in managing & implementing complex long-term projects, preferably in Higher Education; Experience in successfully managing organization-wide administrative systems projects; Ability to utilize proven implementation methodologies & project management tools; Expertise in using PeopleSoft implementation methodology is preferred.

Benefits:

Excellent salary & benefit package, including performance incentives, is being offered for this career enhancing opportunity. Relocation assistance available.

To join our team, please contact:
CSUSB - HR Dept.,
5500 Univ. Pkwy.,
San Bernardino, CA 92407
(909) 880-5139 or
<http://www.csusb.edu>
e-mail jcasilla@csusb.edu
An Equal Opportunity Employer



CALIFORNIA STATE UNIVERSITY

SAN BERNARDINO

Please mark job code: 1999-0054 -
Information Resources & Technology

SCS AMERICA

SOFTWARE CONSULTING SERVICES

SCS is a fast growing National Implementation Partner for SAP. We provide a full range of SAP services both directly and indirectly to clients. We are searching nationwide for enthusiastic SAP analysts with the following requirements:

- SAP experience in FI, CO, AM, PS, HR, SD, MM, WM, PP, QM, SM, Basis or Abap/4.
- Some positions require 2 years SAP experience and/or Bachelors or Masters Degree.
- Extensive travel and possible relocation involved.

For immediate consideration mail, fax or e-mail your resume to:

Job #A05786581

SCS America Inc.
950 Tower Lane
#1850
Foster City, CA 94404
(650) 578-6530 (Fax)
Resumes@
scsamericacom

METAMOR INFORMATION TECHNOLOGY SERVICES

COMSYS

Information technology services

METAMOR is a leader in the national IT market with over 4,000 consultants nationwide. Our strong ethics have led the Portland branch to 11 years of strong local market leadership & local success measured in double digits.

METAMOR has various openings in Portland for consultants with 2 years of experience.

METAMOR offers a competitive compensation & benefits package. For immediate consideration, mail, fax or e-mail your resume to:

METAMOR Information Technology Services
10220 SW Greenburg Road, Suite 301,
Dept C, Portland, OR 97223
Fax: (503) 293-3898
Tel: (503) 293-2499
Toll free: (888) 882-8326
E-mail: jpatterson@metamor-its.com
Web: <http://www.metamor-its.com>

Pacific Northwest

• Oracle, Java

• Oracle, PL/SQL

• Mumps

• Oracle, COBOL



• Vax Administrator

• DB2, CICS, COBOL

Equal Opportunity Employer

PROGRAMMER / ANALYSTS

GLOBAL SOFTWARE

Multiple openings for Programmer/Analysts with Georgia-based software consulting firm to design, develop, test and implement transaction processing/business application software for national client base in mainframe or client/server environments. Must have B.Sc. in engineering, computer science, mathematics or related discipline and 1 year programming experience either (1) performing data and process modeling and relational data base management utilizing EIP Composer (Cool:Gen) CASE tool to code/test action diagrams for

online and batch transactions and to interface with non-Cool:Gen generated code using both COBOL and C or (2) performing transaction processing applications development utilizing COBOL, IMS DB or DC, DB2 and CICS. Some positions may require use of Oracle, TSO or JCL. Extensive travel required. Competitive benefits. Salaries start at \$55,000 and increase commensurate with experience/skill sets. Send resume to: Recruiting, Global Software, 1110 Northchase Pkwy, Ste. 250, Marietta, GA 30067.

Systems Analyst - St. Louis, MO - Analyze/evaluate existing info processing systems, develop new programming to maximize efficiency according to user needs, program functions & methods to develop & modify client's systems programming. Oversee computer system capabilities, work generated & scheduling limitations. Upgrade/maintain systems to eliminate errors following implem'n. Req: Bach-CompSci, Engin'g &/or related discipline + 1 yr exp in job or 1 yr related exp-softw/computer applic'n design &/or development or related exp. Must have exp with: C/C++, Windows NT, UNIX; & knowl, gained thru ed or exp, of relational database mgmt software/SOL. 40 hrs/wk - \$48,000/yr. The Job Order # for this Job Opportunity is 138176. NO CALLS PLEASE. Send resume to: Shirley J. Gregory, Missouri Division of Employment Security, 1411 Main Street, Kansas City, MO 64105. Must have proof of legal authority to work in the United States.

Senior Software Engineer: Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation and manages the implementation of an Oracle RDBMS system as an Oracle DBA. One year of experience required using: Oracle RDBMS, Oracle Applications (a combination of: Financials, Manufacturing, Order Entry, Inventory, Accounts Receivable/Accounts Payable and Materials Management), SOL*Plus, Pro*C, PL/SOL, SOL*Forms, Reportwriter. Work involves extensive travel and frequent relocation. Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math, Physics or Materials Management. Will accept B.S. degree or foreign equivalent with five years of experience as computer professional. Salary: \$90,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. Greg Schwing, Mgr. Mon Valley Job Center, 345 Fifth Ave., McKeesport, PA 15132; Job Order No.: 9092283.

Senior Software Engineer (11 openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. One year of experience required using: 1 of Group A and 3 of Group B OR 2 of A and 2 of B as follows: Group A - Oracle RDBMS, Designer 2000, Developer 2000, Oracle Applications (Financials, Manufacturing - Order Entry & Inventory); Group B - Oracle Forms, Oracle Reports, SOL*Plus, Pro*C, PL/SOL, SOL*Forms, SOL*Reports. Work involves extensive travel and frequent relocation. Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math or Physics or Materials Management. Will accept B.S. degree or foreign equivalent with five years of experience as computer professional. Salary: \$70,000 per/yr, 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. John McCraley, Mgr. Butler County Job Center, 227 West Cunningham St., Butler, PA 16003; Job Order No. 9092289.

Three (3) positions available for Project Leaders to direct and lead the implementation of Oracle ERP Systems for international manufacturer and distributor of fastening systems. Manage the analysis, design, testing, training and implementation of ERP Systems that will be based on Oracle's relational database. Assume full project leadership responsibility of all project related information system technology for both domestic and international databases. Applicant must have a Master's Degree in Computer Science, Engineering, Mathematics, Computer Applications or a related field. Applicant must also have 1 year of experience as Systems Engineer Software Engineer or Applications Analyst for Oracle Applications with emphasis on the Revonue and/or Supply Chain Streams Travel (25%) is required to include both domestic and international assignments. Send resume to: Rosalyn Cunningham, Hilti, 5400 S. 122 East Avenue, Tulsa, Oklahoma 74146. Hilti is proud to be an equal opportunity employer which supports a multicultural workplace.

SAP PROFESSIONALS



COME TO WHERE THE BIG BUCKS ARE

Hunting for an outstanding SAP™ consulting opportunity? Come to Spearhead's neck of the woods. A fast-growing SAP National Implementation Partner with proven industry expertise and proven R/3 success, we hire only the most talented and experienced SAP pros in the business...then we compensate them like no other firm in the business. For example:

Project Managers—\$180K+
Expert Consultants—\$180K+

Team Leaders,
Sr. Consultants—\$150K+
Consultants—\$120K+

Spearhead supports these lofty compensation levels with exceptional performance incentives and a comprehensive benefits package.

We're seeking SAP experts in... FI, CO, AM, PS, HR, Payroll, SD, SFA, MM, WM, PP, SCOPE, APO, QM, PM, SM, CCS, BW, AFS, Retail, EDI for SAP, ALE, Basis and ABAP/4

We're looking for proven industry expertise in...

Manufacturing/Supply Chain, Retail/CPG/AFS, Services and Utilities/Telecom

We're currently staffing projects in... the U.S., Canada, South America, the Pacific Rim and Europe

So come on over to where the big bucks are.

Fax us your resumé...

212.440.5001

Attention: Resource Manager
Or send it to...

Spearhead System Consultants (US) Ltd.

55 Broad Street 24th Fl.

New York, NY 10004

Or visit our web site...

www.spearhead.com

Or call us... 212.440.5000

1.888.spearhead

spearhead™

SAP is a registered trademark of SAP AG.

Programmer/Analyst (DOT 030.162-014; NC client sites) Analyze, design, develop, test & implement application systems & subsystems in client/server architecture. Environment: UNIX; Oracle, Oracle Developer 2000; PL/SOL; SQL*Plus. Bachelors degree in Comp. Sci or Math or Engg + 2 yrs exp. in job off'd. \$43K/yr, 40 hrs/wk, 9-5. Send resume w/social security # to JO NC7219251; Job Service, 700 Wade Ave., PO Box 27227, Raleigh, NC 27611.

Systems Engineer wanted F/T by a California Network Systems Integrator for NY office location, to perform system integration for LAN/WAN, install software, upgrade networks, reconfigure hardware, troubleshoot & maintain systems and train users in Japanese for Japanese software. Bachelors in Comp. Info Sysys req'd. Respond by mail only to: Andrew Kubota, Hitachi Software Engineering America, Ltd. 601 Gateway Blvd., #500 South San Francisco, CA 94080-7025.

Programmers, Sr. level (grad degree or equiv. exp) needed for consulting firm serving the financial industry. Knowledge of Focus, C++ and Oracle a must. See details in our website www.cacamerica.com. Apply to Human Resources, CAC America, 30 Rockefeller Plaza, Suite 4528, New York, NY 10112.

Software Engineer wanted by IS/IT Consulting Co. in Rutherford, NJ to work at various client sites in the US. Must have expertise in MS SQL Server, Visual Basic & Access and 2 yrs exp in computer software devlpmt (Systems Analyst, Project Analyst, Software Engr). Masters in Comp. Sci, Comp. Engg or Mgmt. Info. Sysys req'd. Respond to: HR Dept, Soft Trends, Inc. Meadows Office Complex, 301 Rt 17 N, Ste #800, Rutherford, NJ 07070.

Sr. Programmer Analyst wanted by IT Co. in Union, NJ. Must have 3 yrs exp dsgng & dvlpng client/server applics using Power-builder as GUI and Sybase as the relational database. BS in Comp Sci required. Respond to: HR Dept, Patel Consultants Corp, 1525 Morris Ave, Union, NJ 07083.

Systems Analyst needed by Developer in Amherst, NH. Must have 1 yr experience analyzing procedures, reqmts & problems for users who use image processing applics and dvlpng software applics using & implmgt advanced image processing algorithms and using Intel Assembly, C & C++ w/OOD envrmt on WIN 95/NT. Bach or equiv in Comp. Sci, Electrical Engg, Electrical Product Engg or Software Engg req'd. Respond to: HR Dept, Black Ice Software, Inc, 292 Rte 101, Salzburg Square, Amherst, NH 03031.

UNIX System Administrators wanted for NJ IT company to install, configure Sun Solaris Operating System and design, implement fault tolerant servers. Must have 2 years experience. Apply to Global Consultants, 601 Jefferson Rd, Parsippany, NJ 07054.

Software Engineer needed by Computer Services Co. in Englewood, NJ. Must have 6 mos exp analyzing, dsgng & dvlpng comp. software for Novell & Windows NT networks using C/C++ and PowerBuilder and dvlpmt of internet/intranet applic using JAVA. Pre degree experience okay. Respond to: HR Dept., PC Warehouse, 70 E. Palisade Ave, Englewood, NJ 07631.

Database Administrator needed F/T by S/ware Dvlpmnt & Consultancy Co. in Parsippany, NJ. Must have Masters in Comp. Sci or Comp. Engg & 2 yrs experience as Database Administrator. Respond to: HR Dept., Distinctive Systems, Inc., 14 Arnold Drive, Parsippany, NJ 07454.

Software Engineer - Network, wanted F/T by IS/IT Professional Services Co. in Metuchen, NJ to work at various unanticipated client locations in the US. Must have 2 yrs exp in n/work dsgn, & implmntn; Bachelors in Comp. Sci, Comp. Engg, Electrical Engg or Electronics Engg, expertise in n/work dsgn & implmntn and n/work certification. Respond by resume to: HR Dept., Netcom Systems Inc., 61 Pearl St, Metuchen, NJ 08840.



June 6-9, 1999

Palm Desert
CALIFORNIA

1-800-488-9204

IT CAREERS EAST

Database Administrator with exp. using Oracle, Unix, Oracle*Forms, PRO*C, PL/SOL, SOL*Menu, SOL*Plus, Enterprise Mgr., & ERWin. Implement client-server tech. sys. in Oracle & Unix environ; database logical design, estimate tables/indexes/data file sizes; create Oracle database objects, code database pkgs & stored procedures, fine tune & improve database performance, dev. & generate utility reports, implement backup/recovery scripts. \$57,554/yr. 40 hr/wk. B.S. or equiv. in Comp. Sc., Comp. Eng., or Electrical/Electronics Eng. B.S. or equiv. in Physics or Math acceptable with specialty in Electronics. 3 yrs. exp. req'd in job or as Systems Eng. or Sr. Systems Analyst. Submit resume to Info. Systems Mgr., Crown Crafts, Inc., 250 Crown Blvd., Timberlake, NC 27583.

Network Design Engineer: Responsible for complete design package for new & existing network implementations. Analyzes data processing requirements to plan system; plans layout and installation of new system. Duties include project mgt, network capacity planning, and voice & data integration. Confers with data processing managers to determine projected work load. Requires experience in Cabletron HUBS/Switches, UNIX, USA Total Control Hub, Encryption Devices, SNIFFER, & in configuration & mgt of routers. Must be fluent in Spanish. (2 job openings) Job is in Ft. Lauderdale. Req. BS in Computer Related Science, Min. 2 yr. exp. as Computer Engineer; \$62K yr; 40 hrs 9:00am-5:00pm. Send resume to Bureau of Workforce Program Support, Job Order FL-1910319, P.O. Box 10869, Tallahassee, FL 32302-0869.

Programmer/Analyst (DOT 030.162-014; NC client sites) Analyze, design, develop & maintain Client/Server application systems & subsystems, develops Graphical User Interface (GUI) interfaces; write shell scripts to provide automatic recovery during system failure; evaluate & fine tune systems; prepare technical documentation. Environment: Unix, C, SOL & Oracle. Bachelors degree in Comp. Sci or Math or Engg + 2 yrs exp. in job off'd. \$43K/yr, 40 hrs/wk, 9-5. Send resume w/social security # to JO NC7219021; Job Service, 700 Wade Ave., PO Box 27227, Raleigh, NC 27611.

Responsible for product engineering, providing technical assistance to the assembly plants in Latin America and product support related to the company's proprietary Kelyx brand. Design computers according to the local standard of each Latin American country. Selecting and quality control of all parts in its electric, electronic, emission and thermal parameters, and prototype testing, and pre-certification of working models. Create protocols for production line and assembly procedures, supervise error correction and quality control. Create and update repair and user manuals in Spanish and Portuguese. Train and supervise technical support staff, R.M.A. department, and service and repair center. Oversee use of Base software and maintain Redundant servers for 65 user networks, imaging server, fax server, and internet server. Develop and maintain the company internet pages using HTML and Java computer languages. Develop new R.M.A. program using Universal server concept. Manage a group of 15 employees. Communicate daily with customers, manufacturers and distributors in Latin America regarding manufacturing, assembly and technical projects. Must speak, write and read fluent Spanish and Portuguese. Must be able to travel no less than 10% of the time during the year. Send resume to: Dept. of Labor/Bureau of Workforce Program Support, Tallahassee, FL 32302 FL-1903141 (Case 1873)

SOFTWARE ENGINEER to lead team of programmers to design, develop, test and maintain application software for Revenue Management System using UNIX (AIX, Sun, HP) interprocess communication, object oriented programming in client/server UNIX environment and Oracle RDBMS (SQL Plus, SQL Loader, PL/SOL, Pro*C); evaluate client's needs, analyze requirements and develop software systems using concepts of mathematical algorithms and modeling and simulation techniques. Require: M.S. in Computational/Computer Science with one year's experience. Salary: \$60,000 per year, 40 hours/week, 8:30 am to 5:30 pm, M-F. Mail resume to: R. Lynn Howard, Manager, Human Resources, Talus Solutions, Inc., 4751 Rest Road, Suite 300, Atlanta, GA 30337 (Ref. Job Code SM99).

Sr. Software Engineer wanted by Voice Processing Technology Co. in Burlington, MA. Must have Bachelors in Comp. Sci or related field & 2 yrs exp in computer telephony, incl. Real-Time operating systems & multi-tasking kernels and DSP s/w dsgn. Respond to: HR Dept., Lernout & Haussie Speech Products, U.S.A., 52 Third Ave., Burlington, MA 01803.

Programmer/Analyst Design and develop computer system and programs on mid-range UNIX platform using C, SOL and Oracle database; provide technical support of customer solutions; code, test, and implement products, and provide ongoing support; design and develop new features and functionality for products and services; work on assessment and create solutions of Y2K issues. MS degree or BS with 5 years experience or equivalent in CS, CE, CIS, or EE; 6 months or above experience in job offered or in computer communications; proficiency in C/C++, UNIX, Oracle SOL, and Database. Salary \$55,000/yr. Contact: Equifax Attn: Samuel Ezeilo, Technical Recruiting, P.O. Box 740006, Atlanta, GA 30374-0006, Tel (770) 740-6114. EOE

Principal Software Engineer/Developer to participate in the architecture design, development, and maintenance of database systems within a multi-database client/server environment using SYBASE RDBMS on UNIX platform. Development focus on mission critical batch transaction systems and ad hoc reporting in support of mutual fund business. Assist in specification and design of database applications. Define, program, and maintain software programs and utilities. Implement database standards and guidelines. Develop and implement test plans. Assist in database development in areas of performance and tuning. Troubleshoot database problems. Maintain effective communication with project manager, user groups, developers, systems administration, and operations personnel to insure an integrated approach to database development and operational readiness of environment at all times. Requires Bachelor Degree in Science and four (4) years experience in job offered or four (4) years experience in application development using SYBASE RDBMS on UNIX platform. Candidate must also possess demonstrated expertise in database design using logical and physical database modeling techniques; demonstrated expertise in SOL coding and performance tuning of SYBASE applications; and demonstrated expertise coding and debugging of UNIX shell scripts. Salary: \$69,000/yr; Mon-Fri, 9:00AM-5:00PM. Send resumes to: Case Number 80834, P. O. Box 8968, Boston, MA 02114, EOE. Applicants must be U.S. workers eligible to accept employment in the United States on a full-time basis.

Database Administrator. To plan, design, implement & manage new Client-Server & Web (internet) DB sytems. & upgrades for business info. sytems. Diagnose & devise fixes for errors & problems. Maintain Sybase Srvrs under UNIX envmnt. & program Sybase DB-Library C & UNIX shell. Set up & maintain production DB environ. Multiple positions avail. (2). Reqmts: MS degree in CS, MIS, Engng or equiv & 3 yrs progressive experience in Job Offered or 3 yrs. experience in developing & implementing business info. sytems. Alt. reqmts: Bach. degree in CS, MIS, Engng, or equiv. & 5 yrs. progressive exper. in Job Offered or developing & implementing business info. sytems. Expertise to include: 2 yrs. admin. & implementing Sybase DB Srvr. under UNIX; demonstrated expertise prgmngr. Sybase DB-Library, C & UNIX shell; demonstrated expertise setting up & maintaining production DB environ.; & demonstrated expertise in Logical and Physical data modeling of Web-DB & Client-Srvr. applictns. Salary: \$75,000/yr; M-F 9-6. Send 2 resumes to Case #80856, P.O. Box 8968, Boston, MA 02114. EOE.

PROGRAMMER/ANALYST (Columbia, SC) to analyze, design, develop, test and maintain client/server application software using C, C++, COBOL, DB/2, CM2, PM and OS/2 on IBM PC and Main Frame machines. Require: B.S. degree in Mathematics, Computer Science, or a closely related field two years of experience in the job offered; An M.S. degree in Mathematics, Computer Science, or a closely related field, with a demonstrated ability to perform the stated duties gained through previous work experience/academic coursework, will be accepted in lieu of the B.S. degree and two years of experience. Salary: \$36,401.40/ year; M-F; 8:30 a.m. to 5:15 p.m. Send 2 resumes to: Ms. Regina D. Ratterree, E & T Technical Services, SCESC-SC2000872, P.O. Box 1406, Columbia, SC 29202.

SYSTEMS ANALYST, TRADE-MARKETING. Responsible for the development & support of computer applications utilized by the Trade Marketing Department of a major tobacco corporation. Key responsibilities include the determination of definitions of systems & business requirements & effective system design approaches as well as the programming, testing & implementation of associated computer software. Responsible for working with the customer service group to provide technical support to field users, monitoring & resolving problems with data communication server & related equipment, & identifying & resolving transactional data problems. Specific job requirements include development & support of programs for Handheld, Notebook, & Enterprise server computers. Must be able to perform data modeling on relational and hierarchical databases. Will provide technical support for user requests and problems. This position requires constant interaction with key individuals in the company who rely upon these applications. Qualif. applicants must have either a Bachelor's degree in Computer Science, Communications Engineering or related discipline, or 4 years' experience as a Systems Analyst or in a related occupational field may be substituted for a Bachelor's degree. Experience required must have included at least 1 year of experience developing NATURAL programs with ADA-BAS in an IBM Mainframe OS/390 - ROSCOE/CICS environment, 2 years' experience developing & configuring client-server systems using SOL Windows (including Report Windows) with SOLBASE & Sybase SOL in a PC Windows/PC-DOS/Novell/HP-UX environment. Must have 3 years' experience developing applications with C in a DOS environment. Must also have 6 months' experience using ErWin & database tools such as DbaDesktop, ISOL, & dbVista IDA & 6 mos experience developing KSH and DOS shell scripts. Hrs: 8 to 5. \$64,860/yr. Only persons authorized to work permanently in the United States need apply. Please forward resume to Jane Hosley, #0369658, Kentucky DES, 275 E Main St. 2-W, Frankfort, Ky 40621. An equal opportunity employer.

SAP Basis Administrator. Duties: Resp. for supporting SAP centralized & fault tolerant servers & supporting the PLC interface to the mfg. line and SAP. Support the HR interface to SAP (Kronos and ADP) Resp. for the tech. flow & efficient communication of data with the HR payroll vendor. Monitor backup processing, on-line operations & night operations for devices supporting the interfaces between SAP and external interfaces. Schedule, communicate and coordinate system downtime. Perform monitoring of external devices, incl. data storage server, comm. hardware & software & comm. lines. Coordinate the backup, archiving and recovery plan of external devices and data storage servers. Resp. for monitoring version levels & coordinating upgrades of interfaces & base SAP system. Establish and maintain security for all master data. Resp. for changes & upgrades to master data & performing table maintenance. Requires: B.S. (or foreign equiv.) in Computer or Info. Science or related field & 5 years exp. in the job offered or 5 years exp. as a System Adm., Programmer/Analyst or Programmer. Exp., which may have been obtained concurrently, must incl. 3 yrs. exp. supporting SAP centralized & fault tolerant servers & supporting PLC interface and 5 yrs. exp. performing monitoring of external devices and establishing & maintaining security for master data. 40 hrs/wk.; 7:00 a.m. to 4:00 p.m. Salary: \$72,200/yr. Send resume (no calls) to: Carol Majewski, Lemforder Corporation, 7310 Turfway Rd., Suite 450, Florence, KY 41042.

Senior Software Engineer - Duties include analysis, design, planning, development, testing, documentation and support of OpenVMS Clusters software products. Will provide application and systems level programming in the MACRO-32 and C programming languages in multi-site OpenVMS Cluster environments. Requirements include a Bachelor's Degree in Engineering or related field and three years of experience in the job offered or as a Senior Programmer Analyst. Salary: \$41,724/yr. M-F, 9am-5pm. Respond to: Tip English, Seminole Electric Cooperative Inc., 16313 N Dale Mabry Hwy, Tampa, FL 33688.

Management Consulting Services



Steven Morgan photographed by Igor Emmerich

Think big thoughts.
Do great things.

ERP OPPORTUNITIES

As a result of tremendous growth, PricewaterhouseCoopers has exceptional opportunities in the D.C. Metro area for professionals with experience and a related Bachelor's degree.

We have established an **ERP Development Center**, from which we will develop and implement ERP Human Resources and Financials applications for a broad range of clients in the higher education, federal, state and local government practices. Our ERP Development Center currently has opportunities available for the following professionals:

PEOPLESOF

Technical Architects
PeopleSoft Developers
Financials/Human Resources Specialists
Change Management Specialists
Infrastructure Specialists

Some positions will require travel.

We offer cutting-edge technology, a diverse work environment and innovative projects. For consideration, please forward your resume to: PricewaterhouseCoopers, Management Consulting, Attn: CW-215, 12902 Federal Systems Park Drive, Fair Lakes, VA 22033. Fax: (703) 633-6269. E-mail: hrgov.resume@us.pwcglobal.com

PRICEWATERHOUSECOOPERS 

www.pwcglobal.com/mccareers

PricewaterhouseCoopers is an Equal Opportunity and Affirmative Action Employer.

©1999 PricewaterhouseCoopers LLP. PricewaterhouseCoopers refers to the U.S. firm of PricewaterhouseCoopers LLP and other members of the worldwide PricewaterhouseCoopers organization.

Database & Systems Programmer - Jackson, MS - Design test & implement database & information management systems for HR and Payroll on IBM MVS platforms using CICS, COBOL & JCL. M-F, 8AM-5PM, 40 hrs/wk, \$45,000/yr. Req: Bach. in Comp. Sci./Info. Sci., Math or Engr & 2 yrs exp. Send resume to: MS State Emply. Service, PO Box 13348, 5959 I-55 N. Frontage Rd., Jackson, MS 39236-3348, JO# MS2852231

Operations Analyst II wanted by Electric Utility Co. in Tampa, FL, to coordinate & direct s/w maintenance, dvlpmnt & documentation associated w/Systems Operations Computer Systems; to dvlpmnt, maintain & update various System Operations data bases such as SCADA Load model data bases and Operations Load Management; to coordinate activities of Operations Analyst I and operate SEL/GOULD/ENCORE MPX 1.X operating Systm; perform work in FORTRAN and language C. Use power system Human Machine Interfaces and symbols used in power system metering and control object relating to remote control of high voltage switch gear. Perform analyses using electric utility generation production costing & operation principles. Be responsible for maintenance of real-time energy mgmt system s/ware & dvlpmnt involving automatic generation control w/ economic dispatch & supervisory control and data acquisition. Must have Bachelors in Comp Sci or Eng Tech or equivalent & 3 yrs exp as Electric Utility Systems Applic S/ware Operations Analyst. Salary: \$41,724/yr. M-F, 9am-5pm. Respond to: Tip English, Seminole Electric Cooperative Inc., 16313 N Dale Mabry Hwy, Tampa, FL 33688.

Oracle Applications Sr. Consultant. Duties: Analyze, install, configure & troubleshoot Oracle RDBMS & Oracle ERP applications (Manufacturing & Financials Modules) under UNIX & Windows NT platforms. Create custom code using Oracle PL/SOL to convert data from legacy system to Oracle application database and interface between Oracle application database and third party software incl. Manufacturing, i2 and Agile. Create custom reports in Oracle Reports 2.5 & 3.0 and develop forms in Oracle Forms 4.5. Requires: M.S. in Comp. or Info. Sci. or related field and 3 yrs. exp. in the job offered or 3 yrs. exp. as a Consultant, Software Eng. or Systems Analyst. (Will accept B.S. & 5 yrs. prog. exp. in computer field) Exp. which may have been obtained concurrently, must incl. 2 yrs. exp analyzing, installing, configuring & troubleshooting Oracle RDBMS and Oracle ERP applications 2 yrs. exp. creating custom reports and developing forms & 2 yrs. exp using PL/SOL. Oracle Reports 2.5 & 3.0 & Oracle Forms 4.5. EOE 40 hrs/wk., 8:00 a.m. to 5:00 p.m. Salary: \$90,000/yr. Send resume (no calls) to: Carrie Shevlin, AnswerThink Consulting Group, 3200 Windy Hill Rd., Suite 800 West, Atlanta, GA 30339. Must have legal authority to work in U.S.

SAP Jobs

Superhighway To Success

800.599.9550

WE'LL PUT YOU IN THE DRIVER'S SEAT. INTELLIMARK PLACES HIGH CALIBER SAP PROFESSIONALS INTO LONG AND SHORT-TERM POSITIONS AT LEADING COMPANIES ALL OVER THE GLOBE. WE SEEK PROFESSIONALS WHO ARE HIGHLY PROFICIENT IN ALL MODULES OF SAP, FOR FUNCTIONAL, TECHNICAL, AND BASIS POSITIONS. CALL TODAY TO SPEAK TO A RECRUITER 800.599.9550, OR VISIT INTELLIMARK-IT.COM



Taming A World Of Technical Breakthroughs

Since its beginning in 1987, Grace Technologies has established itself as a different breed of cat. As a nationwide multi-million dollar, employee-based consultancy, our goal is to provide our 250 clients with the highest level of expertise and service to meet and exceed their business goals. By continually adapting to the dynamic landscape of the technology field, we challenge our talented team of professionals to keep ahead of the most cutting edge technologies and solutions. And in our open work environment our professionals have all the creative freedom to run wild with their technical abilities.

If you've got the skills, get ready for a future of fearless opportunities.

Data Warehousing/DSS

- Oracle Express, Brio, Informatica, COGNOS, MicroStrategy, Information Advantage, Business Objects
- Practice Manager (Atlanta)

Oracle Technical Architects

- Oracle Financials Practice Managers
- Sr Oracle Financials Architects
- Oracle Financials Programmers
- Oracle Financials Analyzer

Peoplesoft Technical Architects

- Peoplesoft Practice Manager
- Sr Peoplesoft Financials Architects

DBS (GEAC)

- M&D/MSA
- AP, PO, CP, HR, GL, FA, AR, IC on-site/off-site

For immediate consideration, please call/fax or send resume to: Grace Technologies, Attn: Technical Recruiter, 9 Campus Drive, 3rd Floor, Parsippany, NJ 07054; Ph: 800-767-7017, ext. 334/333/341; Fax: 800-241-2620; E-mail: Recruiting@gracetech.com



Senior Software Engineer (3 openings): Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have one year of experience using: 1 of Group A and 1 of Group B and 1 of Group C; OR 1 of A and 2 of B; OR 1 of A and 2 of C as follows: Group A - Windows NT, Windows 95, Windows SDK, Windows API; Group B - Visual C++, Visual C, C, C++, Visual Basic, PowerBuilder, MFC, CGI; Group C - JAVA, TCP/IP, HTML. Master's degree in one of several limited fields: Computer Sci/Apps, Eng., Chem., Math or Physics. Will accept B.S. degree with five years of experience as computer professional. Salary is \$70,000 per/yr., 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. Duane M. Brentzel, Mgr., Greensburg Job Center, 599 Sells Lane, Greensburg, PA, 15601: Job Order No.: 5023000.

Senior Software Engineer: Design, develop and implement software systems to determine feasibility of design and directs software testing procedures, programming and documentation using relational data base management systems (RDBMS). Work involves extensive travel and frequent relocation. Must have at least one year of experience with SAP and Masters degree in one of several limited fields: Computer Science/Applications, Engineering, Math, Chemistry, Physics or business related field. Will accept a Bachelors degree plus five years of experience as a Computer Professional. Salary: \$100,000 per/yr., 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. Tom Dembosky, Mgr. Indiana Job Center, 350 N. Fourth St., Indiana, PA 15701: Job Order No.: 8046092.

UNIX SYSTEMS ADMINISTRATOR required. Administer UNIX systems and Informix databases. Master's degree required in Math, Computers, Engineering or any related field of study plus six months of experience. University work/project experiences may be used to satisfy the experience requirements. Must have proof of legal authority to work in the U.S. Salary: \$38,000/year for a 40-hour work week. Interested applicants contact the Oklahoma State Employment Service, 11654-A E. 21st St., Tulsa, OK 74129 (ID #72-09). Phone # (918) 437-4437. Refer to Job Order #350567. Ad paid by an Equal Opportunity Employer.

Business Administration Manager with 1 year of experience, or with 1 year of experience as a Business Consultant Professional, will direct and coordinate activities through subordinate supervisory personnel, concerned with computer consulting services. Prepares budgets, coordinates project activities according to cost and business constraints, develops new accounts and maintains current accounts using MS Access, SAS, SYSTAT, MS Excel, and MS Word. Master's of Business Administration degree. \$60,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 5022759 to Mr. Richard Introcaso, Manager, Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003.

SOFTWARE ENGINEER: Install client/server local network system and database server. Perform database design, backup, synchronization and replication. Design & develop Object-Oriented database related applications. Set up Internet connection and E-mail system. Writes technical reports. M.S. in Computer Science or in Computing & Information Science with 1 yr. exp. on job offer or 1 yr. related exp. in database programming & technical report writing. \$60,762.00/yr., 40 hrs. wk. Apply at Texas Workforce Commission, Houston, Texas, or send resume to 1117 Trinity, Room 424T, Austin, Texas 78701, JO# TX0611599. Ad Paid by An Equal Opportunity Employer.

Senior Software Engineer (4 openings): Designs and develops software systems, applying principles and techniques of computer science, engineering and mathematical analysis. Analyzes software requirements to determine feasibility of design and directs software system testing procedures, programming and documentation using SAP. Work involves extensive travel and frequent relocation. Must have at least one year of experience with SAP and Masters degree in one of several limited fields: Computer Science/Applications, Engineering, Math, Chemistry, Physics or business related field. Will accept a Bachelors degree plus five years of experience as a Computer Professional. Salary: \$100,000 per/yr., 40 hrs/wk., 9:00-5:00 p.m. Please submit resumes to: Mr. Terry Kinney, Manager, Armstrong County Job Center, 1270 N. Water St. P.O. Box 759, Kittanning, PA 16201 Job Order No.: 8046088.

System Engineer

Chicago computer consulting firm. Duties include installing LAN and WAN environments, installing and configuring file and application servers on multiple hardware platforms. MS in Computer Science w/ 2 yrs. exp. including detailed work in Netware for SAA, Microsoft BackOffice and Microsoft Exchange. Send resume and salary history to: Human Resources, Job #186, O/E Systems, 150 S. Wacker Dr., Suite # 2950, Chicago, IL 60606

FIND I.T. Consulting Careers HERE

COMPUTERWORLD

Check Opportunities in
Top-Selling Job Sections
Best Skills for Computer Job Opportunities

Directory of
**CONSULTING
EMPLOYERS**
1998

computerworldcareers.com

computerworldcareers.com

**COMPUTERWORLD
CAREERS**

COMPUTERWORLD
CAREERS

Computerworld's



Technical Recruiting & Retention Conference

Desert Springs Marriott
Palm Desert, California

Connect with experts and peers in Palm Desert, California, this June at Computerworld's eighth annual Technical Recruiting & Retention Conference. That's where over 550 corporate technical recruiters from across the nation will discuss their challenges, issues and successes in specially designed workshops, interactive discussions, breakouts and networking events. When you attend, you'll benefit from a complete schedule of topics addressing a wide range of recruiting issues. What's more, at this event's exhibit area, you'll learn about contemporary products and services designed to maximize recruiting efficiency.

Keynote Presentations



I.T. Recruiting & Retention

Barb Cole-Gomolski

Computerworld Reporter/Careers & Labor Issues

Covering one of the hottest topics in I.T., Barb will give up-to-the-minute insight on how companies are dealing with I.T. recruiting and retention.



Intelligent Risking

Brian O'Malley

Everest & Africa Adventurer



Barbara Stoker

Business Consultant & Technical Rock Climber

Set your path. Find your courage. Embrace your adventure. Intelligent Risking allows you to pause and look at the Invisible Risks, the risks you aren't taking in your life. This session is a powerful combination of "The How To" with "The Want To".

Special Events & Features

Town Hall Forum on Compensation Issues

This popular session has been designed to provide an open forum for discussion of compensation issues. It's an opportunity to learn from your peers and a place to share best practices.

Internet Recruiting Case Study

Work through the latest in internet options with this special team building exercise.

Meet Formally and Informally with Peers in the Conference Lounge

For the first time, we're making a new conference lounge available for formal and informal meetings with your peers. Open during all conference hours, it's a great place to take a break and catch up with other recruiting and retention professionals.



June 6-9, 1999

Selected Sessions & Speakers



Conducting a Technical Screen

Susan Hodges

SEMCO Enterprises



The Recruiter's Role in Retaining Talent

Barbara Mitchell

The Millenium Group



Perception is Not Just Everything, it's Everywhere

Frank Cutitta

International Data Group



Immigration Update

Harry Joe, Esq.

Jenkens & Gilchrist



I.T. Recruitment & Retention Metrics Survey & Results

David Weldon

Computerworld

Call the conference hotline for a complete list of scheduled sessions and events:

1-800-488-9204

***At least
their resumes
are out there
working.***



www.careeragent.com

Good career management. It's exhilarating. Now, in addition to the career development assistance you've come to depend on from careeragent.com, there's a lot more. Post your resume on our site and your qualifications will be actively shopped to some of the largest and most respected employers, from Fortune 500 companies to exciting start-ups. You'll get maximum response with minimal effort. And you'll be able to stay on track with new opportunities without the rest of your life missing a beat. Look into careeragent.com and get your resume to get to work.

E-mail your resume to www.careeragent.com Remember to include the Reference Code: CW 9812

BRAVANT
CareerAgent.com

Every great system is built on a model.



www.umlworld.com

Map your next development project with the power of UML.

The Unified Modeling Language (UML) is rapidly becoming the standard language that all developers and managers need to know to define, visualize, build and document the various components of complex software systems. UML World will enable you to simplify your development process and leverage its efficiencies in all of your projects.

WHEN: March 8-11, 1999

WHERE: The Crowne Plaza Hotel
New York City

At UML World you will:

- **LEARN** a standard set of diagrams and notations for modeling object-oriented systems.
- **DISCOVER** project development processes and the use of patterns as solutions to recurring problems in design.
- **EXPLORE** modeling tools to make informed decisions on what is appropriate for your organization.

Featuring:

- Keynotes by the *Three Amigos* – Grady Booch, Ivar Jacobson and James Rumbaugh – the creators of UML.
- Key full day tutorials and over 35 classes.
- Exhibits from modeling vendors.

Contact us today for more information
t 800.441.8826 e umlworld@mfi.com

U M L
W O R L D
One language. One conference.

UNIFIED
MODELING
LANGUAGE
UML
UML is a trademark of OMG

Miller Freeman

Brought to you by Miller Freeman, the leader in media solutions for the development community, producer of the SD 9 conferences, and publisher of Software Development Magazine, Dr. Dobbs Journal, and Microsoft Systems Journal.

Have questions about your career?



Fran Quittel

Nationally Recognized Career Expert and Computerworld's Career Advisor Columnist

With a lengthy background in high tech careers and recruiting, Computerworld's

Career Advisor Fran Quittel specializes in providing in-depth information for job seekers and a "Recruiting Scoreboard" to help employers audit and improve their internal recruiting practices. Fran is author of the book *Firepower: Everything you need to know before and after you lose your job* and is the original creator of The FirePower Career Forum on The Microsoft Network. She also publishes career advice at www.careerbabe.com and tips for employers at www.yourcareer.com

Ask Computerworld's Career Advisor

This new feature will appear every other week starting January 11th and is Computerworld's interactive career advice column. Simply submit your questions to Computerworld's Career Advisor at http://www.computerworld.com/career_advisor and yours might be answered in the print and online pages of Computerworld by nationally recognized columnist Fran Quittel.

MARKETPLACE

For more information on advertising,
call (800) 343-6474

Try Our Proven I.T. Certification Training...

Discover the fastest and easiest way to prepare for I.T. certification. Our Self-Study computer-based training courses provide a learning environment that surpasses traditional classroom and video courses. To prove it, we're offering a free demo disk of our CBT courses to I.T. professionals who call today!

- MCSE
- MCSE+Internet
- MCP
- Cisco
- Intro to Network
- A+ Certification
- MCSD
- Visual C++
- C++
- Oracle
- And More!
- CNE
- Novell CIP
- CNA
- UNIX
- Web Master
- Intro to PC
- Visual Basic
- Java
- COBOL
- Office 97



- Gain Valuable Skills, Knowledge and Technical Recognition
- Open the Door to Great Career Opportunities
- Raise Your Income
- Study at Your Own Pace
- Interactive Hands-on Exercises
- Receive One-on-One Training Consulting

**I.T. Professionals Call Now to
Get Your FREE Demo Disk!**

1-800-475-5831

FOREFRONT
DIRECT
A CBT Group Company

25400 US Hwy. 19 N., #285 • Clearwater, FL 33763

Copyright © 1998 CBT Group, PLC. All rights reserved. ForeFront Direct, the ForeFront Direct logo and ForeFront Direct Self-Study Course are trademarks of CBT Group, PLC. All other trademarks are the properties of their respective holders. Printed in the U.S.A. MCW

Having a Bad GUI Day?

GUIGUIDE™

Enterprise Guidelines for
Web & Client/Server Development

- ✓ Increase developer productivity
- ✓ Reduce end-user training and support costs
- ✓ Template repository promotes consistent designs
- ✓ Web-based authoring makes customization easy
- ✓ Delivered with a highly scalable application server
- ✓ Secure database access and retrieval

888-GUI-CSSI or (925) 755-0832
e-mail: guiguide@classicsys.com

CLASSIC
SYSTEM SOLUTIONS INC.
GUI Design Expertise

FREE DEMO at www.guiguide.com

CUSTOMIZED PERSONALIZED INFORMATION TECHNOLOGY SOLUTIONS

 **Alicomp**

We specialize in providing VM, MVS, VSE service to clients who need Outsourcing, Remote Computing, Year 2000: Mainframe Conversion Test Environment, Tape Conversions, Systems Programming & Networking Support Services

www.alicomp.com

Visit our website, or for more information, call 800-274-5556.

ATTENTION!

Attention!™ will page you, or call you on the phone when critical system or network problems occur.

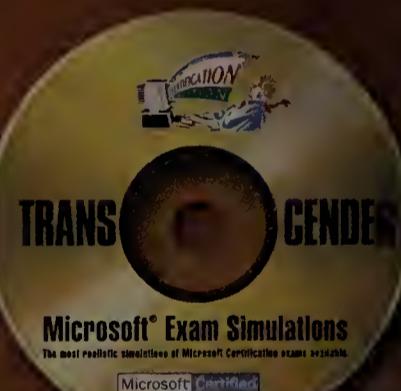
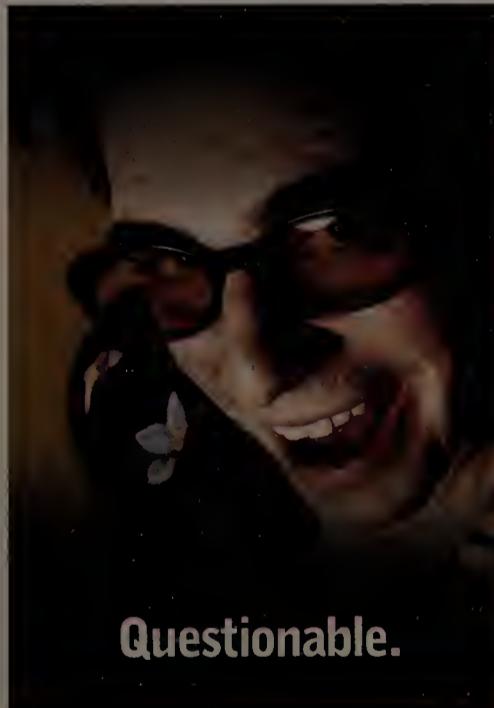
- ✓ Supports UNIX, Windows NT, Windows 95, and Open VMS
- ✓ Notification via numeric and alpha pagers, telephones, and custom methods
- ✓ Interfaces with all leading system/network management products
- ✓ Unlimited escalation guarantees the right people are contacted
- ✓ Personnel call in to **Attention!** to acknowledge receipt of page
- ✓ Fault tolerant design supports redundant **Attention!** servers for immediate failover
- ✓ Event filtering suppresses redundant notification for same problem
- ✓ Heartbeat monitoring guarantees systems and critical applications are running 24x7

www.attentionsoftware.com

ATTENTION
Software

2175 N. Academy Circle • Suite 100 • Colorado Springs, CO 80909
(719) 591-9110 • fax (719) 591-9590

Call for free demo software 800-684-1684



Questionable.

It all comes down to questions. Questions that challenge your expertise about Microsoft products. Question yourself – are you ready? Be absolutely sure. With Spike and the gang's certification guarantee, you will be. Because once you've completed the program, you'll pass with flying colors or get your money back.* And don't worry, because as Microsoft Certification changes, Transcender will have you covered...without question.

Transcender. America's #1 Exam Preparation Software.

Guaranteed.

- Most Realistic MCSE and MCSD Simulations Available
- Detailed Answers and Explanations
- NEW! Computer Adaptive Testing Features
- NEW! Simulation Questions
- Money Back If You Don't Pass Guarantee*
- From \$129 - \$179

Transcender
Corporation

To order, call Howard @ (615) 726-8779 or fax (615) 726-8884; 242 Louise Ave.; Nashville, TN 37201
1999 Transcender Corp. All Rights Reserved. Microsoft is a registered trademark of Microsoft Corporation. Multi-user licenses are available. *Call or see our website for details.

SALES OFFICES

Computerworld Headquarters:

500 Old Connecticut Path, PO Box 9171, Framingham, MA 01701-9171
Phone: (508) 879-0700, Fax: (508) 875-4394Publisher
Jim MartinVice President/Associate Publisher - West
Elaine R. OffenbachRegional Vice President/Associate Publisher - East
Sherry DriscollRegional Vice President Southwest
Michelle Gerus

EAST

DIRECTOR: Isabelle Kane; SENIOR DISTRICT MANAGER: Laurie Marinone;
SALES OPERATIONS MANAGER: Leslie Murray; SENIOR ACCOUNT EXECUTIVE: Nathaniel Hampson; SALES ASSOCIATES: Cheryl Giangregorio, Samantha Hadley, 500 Old Connecticut Path, Framingham, MA 01701 (508) 879-0700 Fax: (508) 270-3882 TDD: (800) 428-8244

DIRECTOR: Lisa Ladle-Wallace, 5242 River Park Villas Dr., St. Augustine, FL 32092, (800) 779-5622 Fax: (800) 779-8622

DIRECTOR: Fred LoSapio; DISTRICT MANAGER: John Bosso; SENIOR ACCOUNT EXECUTIVE: Maureen Grady; SALES & OFFICE ASSOCIATE: Susan Kusnic; SENIOR SALES ASSOCIATE: Jean Delarobba; SALES ASSOCIATE: John Radzniak, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090 Fax: (201) 587-9255, (201) 587-1289 TDD: (800) 208-0288

NORTHWEST

SENIOR DISTRICT MANAGER: Judith Hamerman; DISTRICT MANAGERS: Angela Flores, Denyce Kehoe; SENIOR ACCOUNT EXECUTIVE: Kevin Ebmeyer, ACCOUNT EXECUTIVE: Monica Kormoczy; SALES ASSOCIATES: Bonni-Jo Bouchard, Amy Hudson, Carrie Peterson; SALES OPERATIONS MANAGER: Emmie Hung, 177 Bovet Road, Suite 400, San Mateo, CA 94402 (650) 357-0200 Fax: (650) 524-7000 EAST: Director/Peter Duxer, 875 N. Michigan Ave., Suite 2846, Chicago, IL 60611, (312) 397-6360 Fax: (312) 943-2214

ENTERPRISE BUSINESS SOLUTIONS

BOSTON: Project Coordinator/Heidi Broadley; Managing Editor/Peter Bochner, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 879-0700 Fax: (508) 875-6310 SAN FRANCISCO: Sales Operations Coordinator/Nikki Wilson, 177 Bovet Road, Suite 400, San Mateo, CA 94402 (650) 357-0200 Fax: (650) 524-7000 EAST: Director/Peter Duxer, 875 N. Michigan Ave., Suite 2846, Chicago, IL 60611, (312) 397-6360 Fax: (312) 943-2214

MARKETPLACE/DIRECT RESPONSE CARDS

Sales Manager/Laurie Gomes, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 820-8249 Fax: (508) 875-3701 EAST: Account Director/Norma Tamburino, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-8278 Fax: (201) 712-0430 MIDWEST: Account Director/Linda Clinton, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 820-8288 Fax: (508) 875-3701 CALIFORNIA, ALASKA, HAWAII: Account Executive/Jason Bishop, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 271-8009 Fax: (508) 875-3701 WEST: Account Executive/Maureen Roberti, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 271-8007 Fax: (508) 875-3701

RECRUITMENT ADVERTISING SALES OFFICES

Marketing Director/Derek E. Hultzky, Operations Director/Cynthia



SENIOR DISTRICT MANAGER: Blayne Long, 875 N. Michigan Avenue, Suite 2846, Chicago, IL 60611 (312) 943-4266 Fax: (312) 943-2214

SOUTHWEST

DIRECTOR: Ernie Chamberlain; SENIOR ACCOUNT EXECUTIVES: Claude Garbarino, Julie Compton; SALES ASSOCIATES: Stefan Mayo, Brian Shindlecker; SALES OPERATIONS COORDINATOR: Madeleine Poquiz, 177 Bovet Road, Suite 400, San Mateo, CA 94402 (650) 357-0200 Fax: (650) 524-7001 TDD: (800) 900-3179

SENIOR DISTRICT MANAGER: Jennifer Hedges; SALES ASSOCIATE: Doreen Robinson, 14651 Dallas Parkway, Suite 118, Dallas, TX 75240 (972) 233-0882 Fax: (972) 701-9008 TDD: (800) 822-4918

SENIOR DISTRICT MANAGER: Cindy Wager; SENIOR ACCOUNT EXECUTIVE: Robert Pietsch, SALES ASSOCIATE: Meredith Turner, 2171 Campus Drive, Suite 100, Irvine, CA 92612 (949) 250-3942 Fax: (949) 476-8724

ADVERTISING OPERATIONS PRINT & ON-LINE

SENIOR DISPLAY ADVERTISING COORDINATOR: Gregg Pinsky; DISPLAY ADVERTISING COORDINATOR: Peter Coen, (508) 879-0700 Fax: (508) 879-0446

COMPUTERWORLD

President/CEO
Jim MartinVice President/Marketing
Cynthia L. Ahart
(508) 820-8272Vice President/CIO
Rick Broughton
(508) 620-7700Vice President/
Recruitment Advertising
John Corrigan
(508) 820-8273Vice President/Editor
Paul Gillin
(508) 620-7724Vice President/
Information Management Group
Scott R. Kleinman
(650) 524-7060Vice President/
Manufacturing Operations
Carolyn Medeiros
(508) 620-7733Vice President/
Enterprise Business Solutions
Ronald L. MiltonVice President/
Strategic Circulation Operations
Eric Schmierer
(508) 820-8217Senior Vice President/Finance
Matthew C. Smith
(508) 820-8102

INTERNATIONAL DATA GROUP

CHAIRMAN OF THE BOARD, Patrick J. McGovern

PRESIDENT, Kelly Conlin

CHIEF OPERATING OFFICER, Jim Casella

Computerworld is a publication of International Data Group, which informs more people worldwide about information technology than any other company in the world. With annual revenues of \$2.35 billion, IDG is the leading global provider of IT media, research, conferences and expositions. IDG publishes more than 290 computer newspapers and magazines and 700 book titles in 75 countries, led by Computerworld/InfoWorld, Macworld, Network World, PC World, Channel World, and the "For Dummies" global product lines. IDG offers users the largest network of technology sites around the world through IDG.net (<http://www.idg.net>), which comprises more than 225 targeted Web sites in 55 countries. IDG is also a leading producer of 168 computer-related expositions in 35 countries, and its research arm, International Data Corporation (IDC) provides computer industry research and analysis through 49 offices in 41 countries worldwide. Company information is available at <http://www.idg.com>.

ADVERTISERS INDEX

ADPAC	21	www.adpac.com
Cap Gemini	47	www.capgemini.com
CBSI	67	www.cbsinc.com
Citrix	42-43	www.citrix.com
Compaq Computer Corp.	9, 11, 38	www.compaq.com
Computer Associates	7, 36-37	www.ca.com
Deloitte & Touche Consulting Group (ICS)	40	www.deloitte-ics.com
GENICOM	31	www.genicom.com
Hewlett-Packard	22-23, 25, 60	www.hp.com
IBM	50-51, C3	www.ibm.com
Information Builders	17	www.ibi.com
Microsoft	18-19	www.microsoft.com

Millennia III	10	www.millennia3.com
Nortel Networks	15	www.nortelnetworks.com
Platinum Software	C2	www.platsoft.com
PLATINUM Technology	72-73	www.platinum.com
SAS Institute	13, 41, 59	www.sas.com
Silicon Graphics	35	www.sgi.com/go/visual!
Sybase	71	www.sybase.com
Syncsort	5	www.syncsort.com
Toshiba	26-29	www.toshiba.com
Unisys	C4	www.unisys.com (800) 874-8647 X100
Xerox	75	www.xerox.com

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

COMPUTERWORLD ONLINE INDEX

Ascent Solutions	www.aszip.com
Baan	www.baan.com
Bravant	www.careeragent.com
Cognos	www.cognos.com (800)4-COGNOS
Compaq Computer Corp.	www.compaq.com
EarthWeb	www.earthweb.com
IBM	www.ibm.com
ITCC	www.itccexpo.com
Linkage Inc.	www.linkageinc.com
Microsoft	www.microsoft.com
Nortel Networks	www.nortelnetworks.com

HAVE A PROBLEM WITH YOUR COMPUTERWORLD SUBSCRIPTION?

We want to solve it to your complete satisfaction, and we want to do it fast. Please write to:
Computerworld, P.O. Box 2043, Marion, Ohio 43305-2043.

Your magazine subscription label is a valuable source of information for you and us. You can help us by attaching your magazine label here, or copy your name, address, and coded line as it appears on your label. Send this along with your correspondence.

Address Changes or Other Changes to Your Subscription

All address changes, title changes, etc. should be accompanied by your address label, if possible, or by a copy of the information which appears on the label, including the coded line.

Your New Address Goes Here: **Address shown:** Home Business

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Other Questions and Problems

It is better to write us concerning your problem and include the magazine label. Also, address changes are handled more efficiently by mail. However, should you need to reach us quickly the following toll-free number is available: **1-800-552-4431**

Outside U.S. call (740) 382-3322. Internet address: circulation@cw.com

COMPUTERWORLD allows advertisers and other companies to use its mailing list for selected offers we feel would be of interest to you. We screen these offers carefully. If you do not want to remain on the promotion list, please write to the following address - COMPUTERWORLD, Circulation Department, 500 Old Connecticut Path, Framingham, MA 01701.

NAME	TITLE	ADDRESS	CITY
COMPANY	ZIP	STATE	ZIP

WEEK IN STOCKS

GAINERS ↑

PERCENT

Shared Medical Systems	16.5
Jack Henry Aso	9.5
The Vantive Corp.	9.3
LSI Logic	8.7
Tricord Systems	8.3
Solelectron Corp.	7.9
Documentum	7.9
Wind River Systems Inc. (H)	5.8

DOLLAR

Shared Medical Systems	7.63
Solelectron Corp.	6.25
EMC	3.56
Jack Henry Aso	3.38
Lincar Technology	2.81
MCI WorldCom Inc.	2.81
Applied Materials (H)	2.56
Kla Instruments (H)	2.38

LOSERS ↓

PERCENT

Newbridge Networks	-23.7
Lycos Inc.	-22.4
American Power Conversion	-22.2
Sterling Commerce Inc.	-21.7
Checkfree	-19.1
Procom Tech Inc.	-18.4
Security Dynamics	-17.9
Secure Computing Corp.	-17.7

DOLLAR

Lycos Inc.	-29.06
Yahoo Inc.	-21.75
Amazon.Com	-14.94
Dell Computer Corp.	-12.75
America Online	-12.06
Micron Technology (H)	-11.19
American Power Conversion	-11.09
@Home Corp.	-9.63

BROKERS COPE WITH OUTAGES

Online delays can be costly for buyers, sellers

A SPATE OF BAD PUBLICITY has dragged down the stocks of several online brokerages. ETrade Group Inc. (Nasdaq:ETRG) suffered some embarrassment earlier this month when its online trading system was inaccessible to traders because of problems with a new software installation. Outages also hit the Web sites of The Charles Schwab Corp. (NYSE:SCH), Ameritrade Inc. (Nasdaq:AMTD) and privately held Datek Online Brokerage Services Corp. Investors have since battered ETrade's

stock, sending it down from a peak of 62-7/16 on Feb. 1. to 48-1/4 on Feb. 11.

Ameritrade's stock was on fire during January, zooming from 31-1/2 to open the year to a high of 128-9/16 on Feb. 3. But it had fallen back to 98-1/2 by Feb. 11. Schwab, which has both Web-based and traditional customers, dipped from a peak close of 70-5/16 on Jan. 29 to 66-13/16 on Feb. 11.

Michael Chung, an analyst at Williams Capital Group in New York, says the stocks had been overvalued, with the run-up driven by day traders. But he says he's bullish on the brokers for the long term because they have tremendous growth potential. Chung calls the downturn a "very healthy correction" and a good buying opportunity.

Chung predicts a consolidation of online brokers within the next few years, with today's crowded field of more than 20 brokers narrowing to three or four major players. He says Schwab and ETrade are positioned to seize two of those slots; the others are up for grabs among players that include Ameritrade, Discover Brokerage Direct Inc., Datek and DLJ Direct Inc., a subsidiary of Donaldson Lufkin & Jenrette Inc. (NYSE:DLJ).

David Baltaxe, an analyst at Current Analysis Inc. in Sterling, Va., says reliability is more important in stock trading than in most online retail ventures because delays aren't just an inconvenience — they can cost the customer real money. "If you are not serving the customer to the degree the customer expects, the customer will go elsewhere," Baltaxe says.

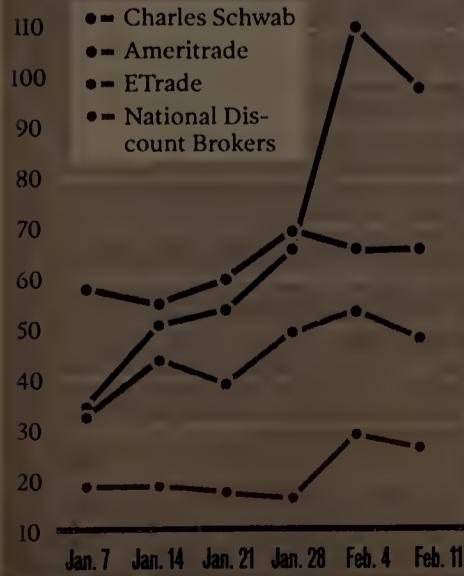
Chung says the service problems should subside as the brokerages' systems mature and Internet bandwidth increases.

— Jeremy Selwyn

Trading Peak?

Recent concerns over online trading limits have hit brokers' stock prices

120



EXCH	52-WEEK RANGE	FEB. 12 2 PM	WK NET CHANGE	WK PCT CHANGE	EXCH	52-WEEK RANGE	FEB. 12 2 PM	WK NET CHANGE	WK PCT CHANGE	
SOFTWARE OFF -3.8%										
A08E	51.87 23.62	44.00	-2.88	-6.1	NT	69.25 26.81	Northern Telecom Ltd	58.75	-3.63	5.8
APPN	56.87 6.12	14.63	-2.25	-13.3	PAIR	24.37 6.00	Pairgain Technologies Inc	9.88	-0.25	2.5
AOSK	50.06 21.62	41.88	0.38	0.9	PCTL	11.93 4.75	Pictel	9.00	-1.00	-10.0
AVIO	47.75 11.06	29.88	1.38	4.8	SFA	33.50 11.75	Scientific Atlanta (H)	32.63	-0.25	-0.8
B00L	34.87 16.00	30.63	0.75	2.5	SHVA	14.37 2.75	Shiva	5.88	0.00	0.0
C0N	39.00 6.68	29.75	-1.25	-4.0	TLAB	93.12 31.37	Telabs Inc.	78.00	-3.25	-4.0
CBTSY	63.87 6.68	17.25	-1.25	-6.8	USW	66.00 46.18	US West	59.94	-1.50	-2.4
CHKPF	56.00 10.87	42.09	0.16	0.4	VRLK	11.18 2.87	Venlink	3.56	-0.38	-9.5
CTXS	107.50 36.37	82.50	4.25	4.9	WSTL	14.75 2.75	Westell Technology Inc	5.25	-0.84	-13.8
COGN	30.50 14.75	23.19	-4.19	-15.3	XYLN	31.31 9.62	Xylan	19.88	1.00	5.3
SEMICONDUCTORS, CHIPS & EQUIPMENT OFF -3.2%										
AOPT	27.50 7.87	Adaptec	21.56	-0.56	-2.5					
AMO	33.00 9.31	Advanced Micro Devices	17.50	1.19	-6.4					
ALTR	71.87 28.25	Altera	57.50	2.94	-4.9					
ADI	39.62 12.00	Analog Devices	30.38	2.63	-8.0					
AMAT	67.68 21.56	Applied Materials (H)	65.63	2.56	-4.1					
ASMLF	49.06 12.93	ASM Lithography Holding	44.88	-0.81	-1.8					
HRS	55.31 27.56	Haris Corp.	35.06	-2.63	-7.0					
INTC	143.68 65.65	Intel Corp.	126.94	-5.81	-4.4					
KLAC	60.06 22.50	Kla Instruments (H)	58.63	2.38	-4.2					
LLTC	104.75 39.12	Linear Technology	101.88	2.81	-2.8					
LSI	29.37 10.50	LSI Logic	26.63	2.13	-8.7					
MXIM	56.62 22.31	Maxim Integrated Products	46.56	-1.06	-2.2					
MU	80.56 20.06	Micron Technology (H)	65.25	-11.19	-14.6					
MOT	73.50 38.37	Motorola	66.19	-2.06	-3.0					
NSM	24.93 7.43	National Semiconductor	11.38	-1.06	-8.5					
STM	107.62 35.87	SGS-Thomson Microelectronics	94.63	5.75	-5.7					
SLR	93.50 35.43	Soletron Corp.	85.31	6.25	-7.9					
TER	66.50 15.00	Teradyne	56.69	4.19	-6.9					
TXN	102.81 45.37	Texas Instruments	93.00	4.19	-4.3					
UNPH	93.75 31.25	Uniphase	82.13	-1.88	-2.2					
VTSS	52.93 17.12	Vitesse Semiconductor Corp.	45.00	4.31	-8.7					
XLNX	87.62 29.75	Xilinx	78.50	4.88	-5.8					
COMPUTER SYSTEMS OFF -6.2%										
AAPL	47.31 18.87	Apple Computer Inc.	37.81	0.88	-2.3					
ASPX	10.25 1.62	Auspex Systems	8.50	-1.13	-11.7					
CPQ	66.50 22.93	Compagny	43.19	-2.56	-5.8					
OGN	21.81 7.00	Data General	16.56	-1.06	-6.0					
DELL	110.00 27.12	Dell Computer Corp.	91.88	12.75	-12.2					
GTW	80.43 36.12	Digital West	71.19	7.38	-9.4					
HWP	83.67 47.06	Hewlett-Packard Co.	76.44	-0.31	-0.4					
HIT	82.37 40.18	Hitachi Ltd.	64.75	3.50	-5.1					
IBM	199.25 95.87	IBM	172.38	0.38	-1.2					
MUEI	24.75 9.68	Micron	13.75	-1.28	-8.5					
MOT	73.50 38.37	Motorola	66.19	-2.06	-3.0					
NATI	36.50 17.50	National Instruments Corp.	29.38	-2.63	-8.2					
NCR	55.75 23.50	NCR	43.13	2.63	-5.7					
NIPCM	81.12 31.00	NEC	47.13	4.63	-8.9					
PRCM	13.25 3.50	Procom Tech Inc.	6.94	-1.56	-18.4					
SQNT	22.62 5.68	Sequent Computer Systems	10.13	-1.75	-14.7					
SGI	20.87 7.37	Silicon Graphics	17.06	2.94	-14.7					
SNE	97.00 60.25	Sony	72.88	0.63	-0.9					
SUNW	115.75 37.62	Sun Microsystems	1							

How to Contact Computerworld

TELEPHONE/FAX

Main phone number (508) 879-0700
All editors unless otherwise noted below

Main fax number (508) 875-8931

24-hour news tip line (508) 820-8555

E-MAIL

Our Web address is www.computerworld.com.
 All staff members can be reached via E-mail on the Internet using the form:
firstname_lastname@computerworld.com.

All IDG News Service correspondents can be reached using the form:
firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to: **letters@cw.com**.

Include your address and telephone number.

MAIL ADDRESS

**PO Box 9171, 500 Old Connecticut Path,
 Framingham, Mass. 01701**

SUBSCRIPTIONS/BACK ISSUES

Phone (800) 552-4431
E-mail circulation@cw.com
Back Issues (508) 820-8167

REPRINTS/PERMISSIONS

Phone Ray Trynovich (717) 560-2001, ext. 24
E-mail sales@rmsreprints.com

CONTACTING CW EDITORS

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Editor in Chief Paul Gillin (508) 820-7724
Executive Editor Maryfran Johnson (508) 820-8179

DEPARTMENT EDITORS

News Editor Patricia Keefe (508) 820-8183
Business Editor Kevin Fogarty (508) 820-8246
Technology Editor Robert L. Scheier (508) 820-8226
Assistant News Editor Michael Goldberg (508) 820-7789
Assistant News Editor Mitch Betts (202) 347-6718
Assistant Business Editor Anne McCrory (508) 820-8205
Assistant Technology Editor Steve Ulfelder (508) 820-7745
West Coast Bureau Chief Galen Gruman (650) 524-7110
Online News Editor Judith H. Bernstein (516) 266-2863
Industry Editor Joseph E. Maglitta (508) 820-8223

REPORTERS

Labor issues, IT careers, Barb Cole-Gomolski (760) 728-8858
health care industry
General assignment Stacy Collett (703) 404-1409
Databases, data warehousing, Stewart Oeck (508) 820-8155
transportation industry
Computerworld online, Tom Oederich (650) 524-7117
New products, Nancy Oillon (650) 524-7114
multimedia, storage
E-mail, groupware, Roberta Fusaro (508) 820-7776
document management,
direct marketing industry
Security, network, Sharon Gaudin (508) 820-8122
operating systems,
publishing/advertising industries
Telecommunications, Matt Hamblen (508) 820-8567
mobile computing,
aerospace, defense contractors
IT management, year 2000, Thomas Hoffman (914) 988-9630
financial services

IT services, systems integration, outsourcing, energy/utilities Julia King (610) 532-7599

E-commerce, Internet issues, travel industry, entertainment Sharon Machlis (508) 820-8231

Microsoft, investigative reports Kim S. Nash (773) 871-3035

Computerworld online Kathleen Ohlson (508) 820-8215

Application development, desktop applications, retailers David Orenstein (650) 524-7116

Java, intranets, business-to-business E-commerce, pharmaceutical industry Carol Sliwa (508) 628-4731

Client/server software, Unix applications, process manufacturing Craig Stedman (508) 820-8120

Federal government Patrick Thibodeau (202) 879-6762

Antitrust, legal issues Jaikumar Vijayan (508) 820-8220

Midrange hardware, Unix, mainframes, heavy manufacturing Bob Wallace (508) 820-8214

Internetworking, automotive and related industries

OPINIONS

Staff Columnist Frank Hayes (503) 252-0100
Columns Editor Galen Gruman (650) 524-7110

FEATURES EDITORS

IT management, leadership Allan E. Alter (508) 820-7714
IT management, year 2000 Rick Saia (508) 820-8118
Field Report, product reviews James Connolly (508) 820-8144
Field Report, Cathleen Gagne (508) 620-7729
Executive Technology
Field Report, Cynthia Morgan (508) 820-8177
IT Careers, David B. Weldon (508) 820-8166
IT Careers, Mari Keefe (508) 628-4906
QuickStudy, Stefanie McCann (508) 820-8274
Special Projects, Joyce Chulchian-Ferranti (508) 820-8574
Special Projects, Amy Malloy (508) 620-7754

FEATURES WRITERS

IT management Kathleen Melymuka (508) 628-4931
Business, technology topics Gary H. Anthes (202) 347-0134
Technology, product reviews Kevin Burden (508) 620-7717

RESEARCH

Laura Hunt, librarian, research analyst
 Keith Shaw, graphics coordinator

COPY DESK

Ellen Fanning, managing editor/production (508) 820-8174;
 Jamie Eckle, assistant managing editor/production;
 David Ramel, assistant managing editor/special projects;
 Pat Hyde, senior copy editor; Jean Consilvio, Mary Cresse, Tom Gaudel, Adam Perez, Bob Rawson, copy editors.

GRAPHIC DESIGN

Tom Monahan, design director (508) 820-8218; Stephanie Faucher, associate art director/features; Mitchell J. Hayes, associate art director/news; David Waugh, associate art director/online; Mary Beth Welch, associate art director/special projects; Nancy Kowal, senior graphic designer; Alice Goldberg-FitzHugh, April O'Connor, graphic designers; Rich Tennant, John Kossner, cartoonists.

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager (ext. 8176); Connie Brown (ext. 8178); Loraine Witzell (ext. 8139); Beliza Veras-Moriarty (ext. 8172); Chris Flanagan (650) 524-7111, editorial assistants.

COMPUTERWORLD ONLINE

Johanna Ambrosio, director; Judith H. Bernstein, news editor; Tom Oederich, reporter (650) 524-7117; Kathleen Ohlson, reporter (508) 820-8215; Jeremy Selwyn, production coordinator; Jodie Naze, manager, online services; Peter Smith, senior Web developer; Aaron Bishop, audio engineer.

COMPANIES IN THIS ISSUE

*Page number refers to page on which story begins.
 Company names can also be searched at www.computerworld.com*

AOBE SYSTEMS INC	8	CITIGROUP INC.	70	ELECTRONIC SYSTEMS CENTER	78
ADVANCED MICRO DEVICES INC.	12	CITRIX SYSTEMS INC.	182	ELF ATOCHEM NORTH AMERICA INC	24
ALGOA STEEL INC.	41	CLARENCE CORP.	1	EMERY WORLDWIDE	8
AMAOEUS	49	CLEVELAND CLINIC	64	EMI RECORDS MUSIC	44
AMADEUS NATIONAL MARKETING COS	54	CLOROX CO.	10	EMPIRE FIRE & MARINE INSURANCE CO.	12
AMOAHLL CORP	1	CNCF TRANSPORTATION INC.	8	ETRADE GROUP INC.	95
AMERICA ONLINE INC	4, 12	COCA-COLA CO.	30	EXCITE INC.	16
AMERICAN CORRECTIONAL ASSOCIATION	42	COGNIZANT TECHNOLOGY SOLUTIONS CORP.	30	FIRST DATA CORP.	52
AMERICAN EXPRESS TRAVEL-RELATED SERVICES CO	16	COMPUTER ASSOCIATES INTERNATIONAL INC.	25, 30	FIRST SECURITY CORP.	1
AMERICAN INTERNATIONAL GROUP	54	COMPAQ COMPUTER CORP.	8, 10, 12	FLAT RIVER TECHNOLOGIES LLC	76
DATA CENTER INC.	54	COMPUSA INC.	8	FORUM MOTOR CO.	14
AMERITRADE INC	95	CONCORDE SOLUTIONS	6	FREE-PC INC.	8
AMR RESEARCH INC	10	CONVOY CORP.	76	FREESHOP INTERNATIONAL INC.	44
ANDERSEN CONSULTING	4, 30	COOLSAVINGS INC.	44	FUJITSU LTD.	67
ARIBA INC	63	COREL CORP.	1, 8	FUJITSU PC CORP.	64
AT&T CORP	68	COUNTRYWIDE HOME LOANS INC	25	FUTURELINK DISTRIBUTION CORP.	1
AUTOMOTIVE RESOURCES INTERNATIONAL	63	CS FIRST BOSTON CORP	54	GARTNER GROUP INC.	6, 25, 41, 48, 52, 62, 78
DATAWARE CORP	1	CURRENT ANALYSIS	65, 95	GENERAL ELECTRIC CO.	69
DATAWARE CORP	1	DAIMLERCHRYSLER AG	14	GENERAL MILLS INC.	45
DATAWARE CORP	1	DATA FELLOWS	65	GIGA INFORMATION GROUP	4, 62, 65
DATAWARE CORP	1	DATA GENERAL CORP	12, 64	GOLMAN, SACHS & CO.	8
DATAWARE CORP	1	DATAWARE NETWORK	30	GRAHAM & JONES LLP	14
DATAWARE CORP	1	DATAWAREHOUSING INSTITUTE	14	GREAT PLAINS SOFTWARE INC.	1, 62
DATAWARE CORP	1	DATAQUEST	45, 49	H&R BLOCK INC.	44
DATAWARE CORP	1	DAYTON HODSON CORP.	70	HARTEROO HOSPITAL	43
DATAWARE CORP	1	DEALER SOLUTIONS	14	HEALTHCARE INFORMATION AND MANAGEMENT SYSTEMS SOCIETY	43
DATAWARE CORP	1	DELL COMPUTER CORP	4, 32	HELP DESK 2000	40
DATAWARE CORP	1	DIGITAL EQUIPMENT CORP	12	HELP DESK INSTITUTE	40
DATAWARE CORP	1	DLJ DIRECT INC	95	HITACHI DATA SYSTEMS INC.	1
DATAWARE CORP	1	DMR CONSULTING GROUP INC	78	HOECHST MARION ROUSSEL INC.	10, 41
DATAWARE CORP	1	DORENFEST & ASSOCIATES	43	HONG KONG FUTURES EXCHANGE	8
DATAWARE CORP	1	DOW CHEMICAL	34	IBM	1, 4, 8, 20, 24, 25, 44, 63, 64, 74, 97
DATAWARE CORP	1	E-CERTIFY	30	IMPACT IT	1
DATAWARE CORP	1	EASTMAN SOFTWARE INC	67	INFORMATION SECURITY ADVISORS	18
DATAWARE CORP	1	EDIFY CORP	74	INTERGRAPH CORP	12
DATAWARE CORP	1	ELECTRONIC DATA SYSTEMS CORP	1, 30, 52	INTERLEAF INC.	62
DATAWARE CORP	1	ELLENBERG ENTERTAINMENT INC	44	INTERNATIONAL DATA CORP.	4, 6, 14, 20, 25
DATAWARE CORP	1	CELLS & IAI SEASONINGS INC	64	INTERNATIONAL DATA CORP.	30, 34, 49, 65
DATAWARE CORP	1	CHASE MANHATTAN BANK CORP	8, 52	INTERNET ENGINEERING TASK FORCE	65
DATAWARE CORP	1	CISCO SYSTEMS INC.	8, 82	INTERNET FINANCIAL SYSTEMS	14

INTERNET SECURITY SYSTEMS	67	PENNZOIL-QUAKER STATE CO.	62
IOMEGA CORP.	64	PEOPLESOF INC.	1, 41, 67, 76
J.D. EDWARDS & CO.	4	PERFORMANCE COMPUTING INC.	62
J.P. MORGAN & CO.	30	PIEMONTE NATURAL GAS INC.	82
J.O. POWER AND ASSOCIATES	14	PLANT-WIDE RESEARCH GROUP	10
JUPITER COMMUNICATIONS INC.	44	PLATINUM SOFTWARE CORP.	4
KELLY SERVICES INC.	66	PLATINUM TECHNOLOGY INC.	4, 62, 76
KENOALL CO.	58	PMI MORTGAGE CO.	65
KEY CORP.	54	PRICEWATERHOUSECOOPERS	48, 66
KIOS R US	44	PROCTER & GAMBLE	66
KMART INC.	44	PROUDENTIAL INSURANCE CO.	54
KRAFT FOODS INC.	45	OF AMERICA	54
LANOMARK SYSTEMS CORP.	64	PUMA TECHNOLOGY INC.	41
LEHMAN BROTHERS INC.	52	RAND CORP.	69
LOTUS DEVELOPMENT CORP.	6, 25, 68, 74	RAYTHEON CORP.	45
LYCOS INC.	30	RED HAT SOFTWARE INC.	1
MARKETMAX INC.	4	REED ELSEVIER INC.	63
MARRIOTT INTERNATIONAL INC.	48	RENAISSANCE WORLDWIDE INC.	48
MARTEC INTERNATIONAL INC.			

Continued from page 1

Retailer Commits to Linux

The company has a strong Unix history and has been using Linux on development workstations for about a year.

Burlington is unusual, however. It is known as a company comfortable with technical risk-taking, having embraced thin clients, Java and now Linux. Many other retailers are only beginning to think about those technologies.

"It may be that the CIO at Burlington Coat is a few years ahead of the game," said Brian Hume, president of Atlanta-based retail information technology consultancy Martec International Inc. "But he's been successful at it."

A more typical Linux adopter would be DNA Plant Technologies Corp., a biotechnology company in Oakland, Calif., with about 80 users. The company plans to implement Linux, which it can easily accommodate, said information systems manager Rob Narberes. The company already uses a wide range of platforms, including Macintosh as the main client system because of its popularity in the sciences. "I would rather choose to have my leg bitten off than to buy NT," Narberes said.

When most retailers have

upgraded their in-store operating systems in the past several years, they have overwhelmingly picked Windows NT, said Donald Bellomy, an analyst at Aberdeen Group Inc. in Boston. It's retailers such as Burlington, which run very few third-party applications, that can choose more obscure platforms, he added.

Despite Burlington's adventurous reputation, Aberdeen analyst Sandra Potter said such a large company's willingness to base a substantial amount of its operations on Linux could send a strong signal that it's a low-cost option that other companies should consider. "I think it might turn out to be groundbreaking," she said.

Making the change to Linux from the current store systems won't be as painful as it would be from a Windows environment. Because Burlington serves many applications to its stores using Internet technology over a new frame-relay network, Prince said, those applications won't be affected by the change to Linux.

And as is generally the case in the retail sector, the discounter's current in-store systems are old. They're based on Sun Microsystems Inc. SPARC-

Linux Who? Most IT Folks Don't Know It

For all the attention that vendors and the media are showering on Linux, the inexpensive - and often free - version of Unix still is an unknown quantity among mainstream corporate IT managers, a new *Computerworld* survey has revealed.

The survey of 154 IT managers found that Linux has a long way to go to win them over (see chart). Few companies - just 9% - are using Linux, while another 5% are considering its use. But 55% aren't even familiar with Linux.

IT managers often are the last to know when Linux has been installed by rank-and-file engineers at a company, analysts and Linux enthusiasts said, suggesting that actual Linux deployment is larger than the survey indicated. But because the managers make the spending and strategic decisions, they will need to embrace Linux before it can become a standard.

The survey showed that if a company such as IBM or Microsoft Corp. were to support Linux, IT managers would be more open to it.

A typical Linux-averse example is Wells Fargo & Co., a commercial bank based in San Francisco. With year 2000 problems to worry about, the bank is clamping down on the use of shareware, said Tim Keefe, a vice president responsible for LANs and desktop systems.

The bank knows how to deal with blue-chip operating systems such as Windows NT and NetWare, he said. But shareware - with little or no support - could pose a risk, he said. The company has sought to root out unauthorized shareware installations, including at least one Linux implementation.

Regardless, major vendors are beginning to line up behind Linux, and the software has achieved widespread adoption outside of corporations, said Dan Kusnetzky, an analyst at International Data Corp. (IDC) in Framingham, Mass.

IDC's research has shown the software to be most popular with small, thrifty Internet service providers; scientists; academic institutions; companies that provide applications over the Internet; and

corporate departments that have been told to build Internet applications but haven't been given funding.

Kusnetzky said that because most universities use Linux as a teaching tool, he expects that Linux eventually will become a mainstream operating system as traditional support services start to emerge for it. ▀

- David Orenstein

Count the Ways

Reasons why companies aren't using Linux:

77%	Committed to another operating system standard
64%	Not familiar with Linux
39%	Not interested in Linux
33%	Lack of available applications
33%	Lack of corporate support

Source: COMPUTERWORLD IT INTELLIGENCE UNIT, FRAMINGHAM, MASS.

Continued from page 1

Hitachi Skyline

fer up to 280 MIPS per processor and will support up to 16 processors in a single enclosure — allowing single-system performance of up to 3,200 MIPS, sources briefed on the announcement said.

But users will have to wait until the first quarter of 2000 for those systems to ship. A smaller, 12-processor version will be available in this year's third quarter, the sources added.

By comparison, a top-of-the-line Generation 5 mainframe from IBM offers less than 1,100 MIPS in a 10-processor config-

JUST THE FACTS

Hitachi's Trinium

- Processors supported: Up to 16 (only a 12-processor version will be available this year).
- Uniprocessor performance: Up to 280 MIPS
- Up to 64G bytes of memory
- Fibre Channel support
- Lets users cluster partitions in parallel sysplex configuration
- Cryptographic coprocessor for enhanced security

uration, and Amdahl Corp.'s Millennium servers top out at 1,075 MIPS. However, IBM is expected to ship a 12-way sys-

tem in this year's third quarter that should offer between 1,500 and 1,700 MIPS of processing power, analysts said.

Demand for that kind of scalability, though limited, still exists in large application environments, analysts said. For instance, First Security Corp., a financial services firm in Salt Lake City, is using a high-end Hitachi Skyline system to host its main production applications and a smaller IBM CMOS system for many of its smaller financial applications.

First Security is looking forward to the increased scalability, said Mike Lopez, project and team leader for hardware. "We have always felt that large engines work well for our main suite of production applica-

tions" because they can handle application growth, he said.

Like current Skyline models, the new system is based on HDS's Advanced CMOS-ECL chip technology. The hybrid approach is an attempt by Hitachi to take advantage of the lower power consumption and space savings of the newer CMOS technology while retaining the speed advantage of emitter-coupled logic (ECL) technology on which older mainframes were based.

The new system should help Hitachi grab some much-needed market attention, analysts said. Once a significant rival of IBM in mainframe MIPS, the company has gotten hammered lately. In the fourth quarter of last year, for

instance, Hitachi sold just over 20,000 MIPS, compared with the 45,000 it sold in the same period a year earlier, said David Foyer, an analyst at Impact IT, a mainframe consultancy in Mountain View, Calif.

And although Hitachi had a 21% market share in 1997, that had shrunk to just 14% last year, compared with IBM's 76% and Amdahl's 10%, said Carl Greiner, an analyst at Meta Group Inc. in Stamford, Conn.

"IBM has been going after them in a big way. They have been very aggressive with prices and have been offering better financing deals" on mainframes than Hitachi, Foyer said. ▀

Web Critics' Picks

The 139-member Online Film Critics Society — a global association of film critics for webzines and online services — recently named its 1998 award winners:



Best Picture: *Saving Private Ryan*

THE ASSOCIATED PRESS

Best Director: Steven Spielberg, *Saving Private Ryan*

Best Actor: Sir Ian McKellen, *Gods and Monsters*

Best Actress: Cate Blanchett, *Elizabeth*

THE ASSOCIATED PRESS

Best Original Screenplay: Andrew Niccol, *The Truman Show*

SOURCE: ONLINE FILM CRITICS SOCIETY (WWW.OFCS.ORG)



This Monitor Fits on a Dime

THE MICRODISPLAY could be used on wearable computers, DVD players, digital cameras, camcorders, wireless phones and other display-challenged products

IF THE WAVE of the future is ever-smaller personal computing devices, what about the monitor? Most microdisplays require sacrificing image quality in favor of portability and extended battery life. But Colorado MicroDisplay Inc. in Boulder, Colo., claims to have licked those problems with its full-color, flicker-free, full-motion video display, which measures just .47 in. (diagonal) yet features a resolution of 800 by 600 pixels and low power consumption. The microdisplay can be mounted on a headset for wearable computers.



INSIDE LINES

NOT DEAD YET

When Compaq Computer bought Digital Equipment, skeptical users fretted that Compaq would cut off life support for Digital's venerable VAX/VMS line.

Those fears were fueled again when Datalogics, a small vendor of publishing software, put a white paper on its Web site stating matter-of-factly that Compaq would pull all VAX support after Dec. 31, 1999.

Not true; insisted Compaq, which also must have convinced Datalogics: By last week, the offending statement was gone.

GOOD DOGGY

More Microsoft courtroom troubles: Last week, the company settled with small Scottish developer Inner Workings, which sued Microsoft for using a yellow dog named **Rocky** as an animated assistant in the forthcoming Office 2000. Inner Workings has used its own yellow dog, **Lemon Dog**, in children's software for years and had even shown the character to Microsoft executives at European trade shows. Under the settlement, Rocky will still appear in Office 2000, but not on any packaging.

WHAT'S THE BUZZ?

New horizons in buzzword appreciation: From systems integrator Cambridge Technology Partners, **XRP**, for "extended resource planning," a successor to enterprise resource planning. From call center vendor Witness Systems, **BDR**, for "business-driven recording" of customer calls.

RUMOR MILL

IBM and **Compaq** are expected to announce support for Linux on March 1, the first day of the Linux World Conference and Expo in San Jose, Calif. . . . E-mail outsourcer Critical Path will announce a pact this week with **Sprint Corp.** to bundle its E-mail services with Sprint's data services. . . . Microsoft is expected to ship at least one more **service pack** for Windows NT 4.0 some time before January.

OVERHEARD

Gartner Group analyst **Ken Dulaney**, on the plethora of wireless data services announcements by Cisco, Microsoft and

other vendors last week: "These companies all want to be the AOL of wireless." . . . **Mark Yarsike**, the produce store owner who filed (and later settled) the first year 2000 lawsuit, testifying before the Senate Commerce Committee: "One thing I know is that the so-called Y2K problem is not a Silicon Valley problem. It's a Warren, Mich., problem."

ON INTERNET TIME

Time capsules just don't last as long as they used to. **MIT's Sloan School** is installing an "Internet time capsule" in its new Web site to preserve a slice of today's Web for future generations. Predictions by Bill Gates and Martha Stewart are encrypted and won't be revealed until the capsule is "opened" in the far distant future of . . . well, **2004**. But heck, news editor **Patricia Keefe** can't even wait that long for your news tips and tidbits. E-mail her at **patricia_keefe@computerworld.com**, or call (508) 820-8183.

The 5th Wave

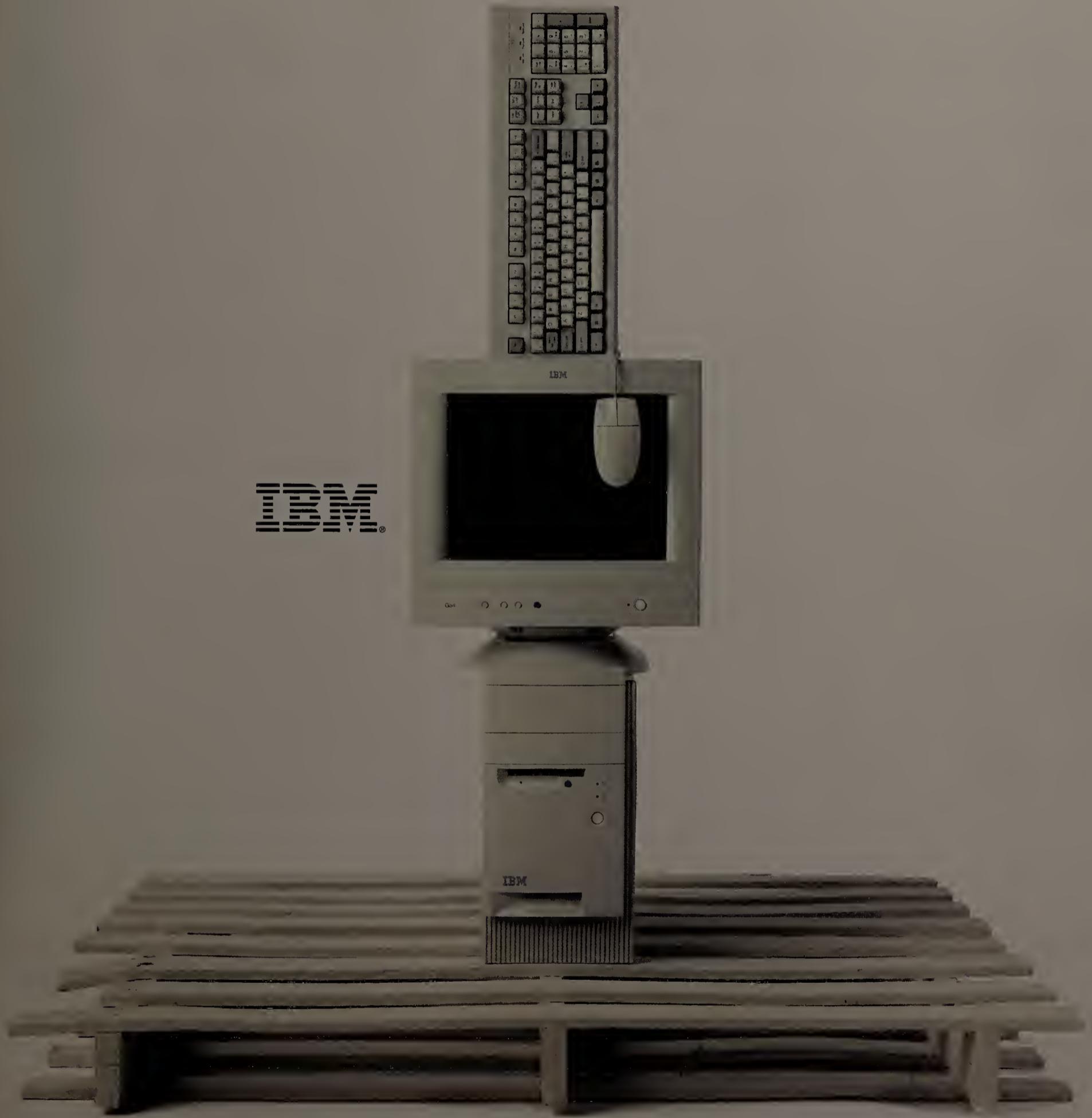


"You know, it dawned on me last night why we aren't getting any hits on our Web site."



*Estimated reseller price to end users for IBM PC 300GL model 6287-41U monitor shown is IBM G-54 with 15" screen and 13.7" viewable image, starting at \$239. Certain features described below are available for all models. Actual price may vary. MHz denotes microprocessor internal clock speed only; other factors may also affect application performance. PCs in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Wake on LAN is a product of IBM/Intel Advanced Manageability Alliance and is a trademark of IBM Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

limit 12,000 per customer



PC 300GL

price

from
\$1,135*
Pentium® II processor 350 mhz
up to 64mb sdram, up to 8.4gb
hard drive, 4 slots, 4 bays

muscle

simplicity

Customizable SystemXtra™ financing, service, support and training options.

load up

More is definitely better. And affordable, even after you buy. Cost-saving, standards-based management features, like Wake on LAN™ allow you to easily integrate truckloads of IBM PC 300GLs into your enterprise. www.ibm.com/ibmpc or call 1 800 IBM 7255, ext. 5030.

e-business tools

We're helping our clients with the millennium problem. Now that's really working against the clock.

Great ideas don't always come between the hours of nine to five. Especially for situations as far reaching as the Year 2000 problem. So even when we're not at work, we're working on it. And coming up with solutions, like bringing Australia's major banks together to help address the kind of problem that only comes along every thousand years. We're helping our clients work together and prepare for potential problems no one has had to face before. www.unisys.com

UNISYS

We eat, sleep and drink this stuff.